F. X. LA CHALL.

COASTER.

APPLICATION FILED JAN. 26, 1915.

1,150,773.

Patented Aug. 17, 1915.

2 SHEETS—SHEET 1.

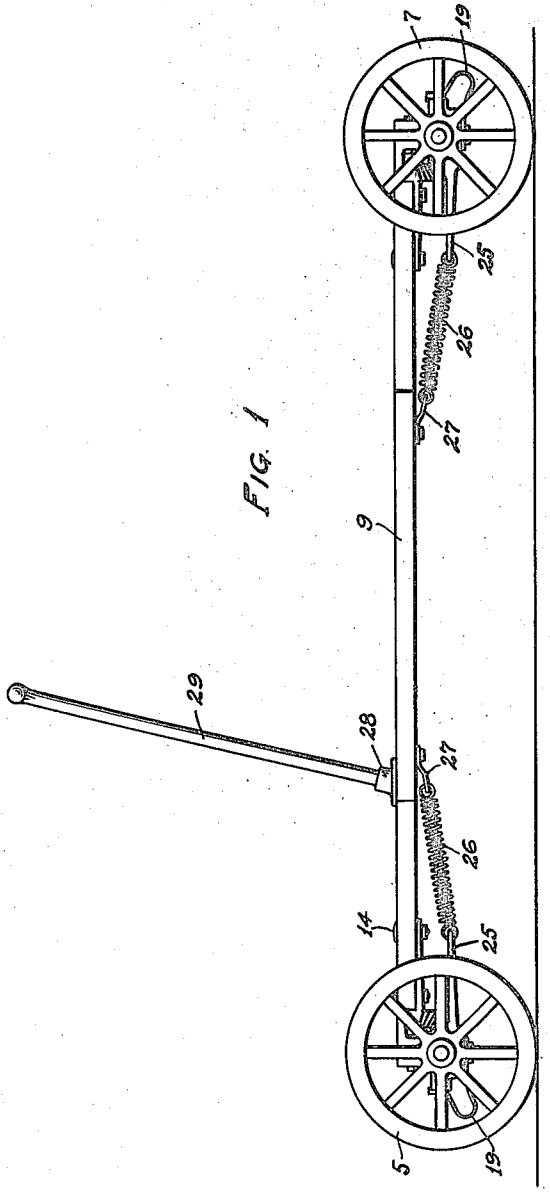


FIG. 1

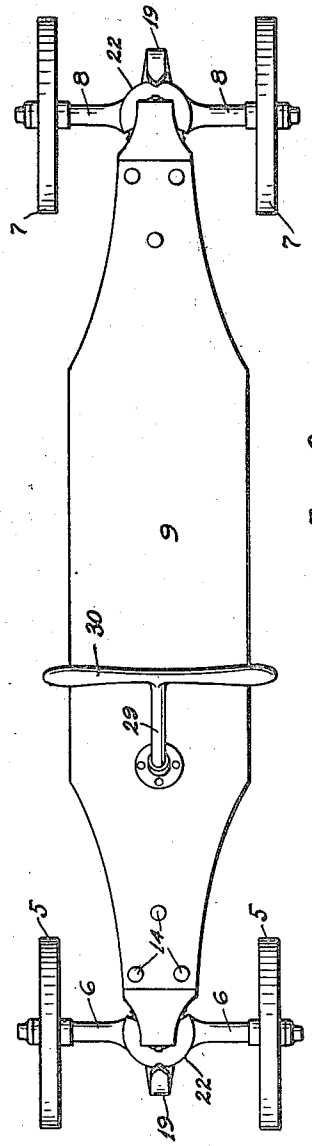


FIG. 2

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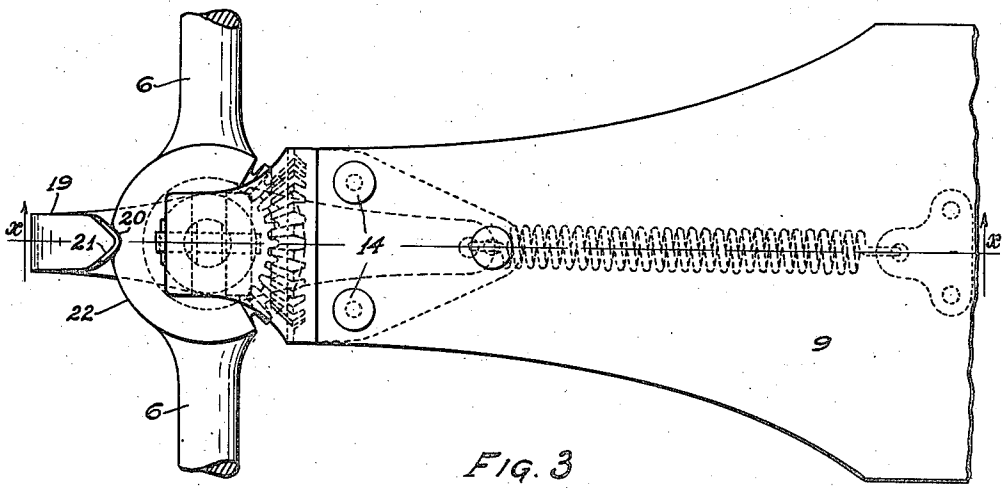


FIG. 3

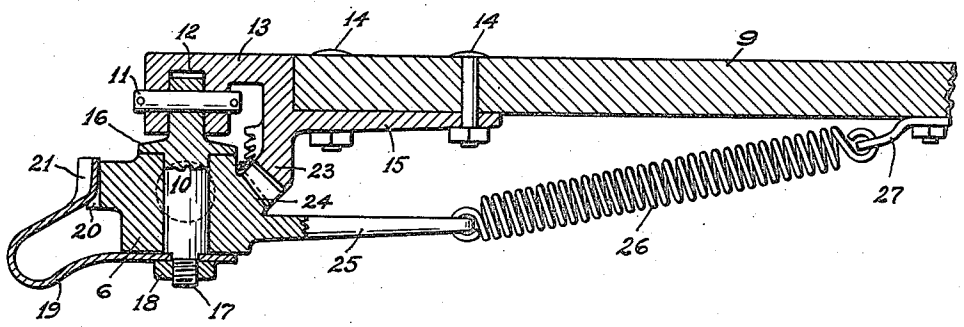


FIG. 4

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COASTER.

1,150,773. Specification of Letters Patent. Patented Aug. 17, 1915.

Application filed January 26, 1915. Serial No. 4,434.

To all whom it may concern:

Be it known that I, FRANCIS X. LA CHALL, citizen of the United States, residing at Seattle, in the county of King and State of Washington, have invented a certain new and useful Improvement in Coasters, of which the following is a specification.

My invention relates to improvements in coasters which are adapted for use by children in the sport of coasting on the hills of a roadway or street, and the object of my invention is to provide a coaster which shall embody steering mechanism that is adapted to be actuated in response to a sidewise swaying movement of the body of the operator by which movement the center of gravity of the load carried by the coaster will be shifted sidewise from the medial longitudinal line to cause the coaster to turn its course in a direction corresponding to the direction of such swaying movement. I attain this object by devices illustrated in the accompanying drawings wherein—

Figure 1 is a view in side elevation of a coaster embodying my invention; Fig. 2 is a plan view of the same; Fig. 3 is a fragmentary plan view on an enlarged scale of parts of the same; and Fig. 4 is a view in vertical mid-section of such parts on broken line x, x of Fig. 3.

Referring to the drawings, throughout which like reference numerals indicate like parts, wheels 5, 5 are mounted on an axle 6 each to be independently rotatable thereon, which wheels 5, 5 and axle 6 form the front truck of a coaster embodying my invention while similar wheels 7, 7 and a like axle 8 constitute the rear truck thereof. Of these two trucks the front one serves to support the front end of a board 9 (upon which the operator may ride in a standing position), while the rear one supports the rear end of such board 9, and since both of these trucks and their associated parts are exactly alike in construction and mode of operation a description of the parts shown in Figs. 3 and 4 will be applicable to the associated parts of either of the end portions of the structure.

Referring now to Fig. 4 a king-bolt 10 is disposed with its upper end portion articulated by a pivot rod 11 within an oblong recess 12 which is formed in the underside of a bracket 13 which is fastened by bolts 14 to the front end portion of the board 9, such bolt 14 extending through the board 9 and through the flange portion 15 which is an integral part of the bracket 13, thus to adapt such king-bolt 10 to swing in sidewise directions on the pivot rod 11.

The king-bolt 10 is provided with a flange 16 disposed adjacent to the underside of the bracket 13, the lower end portion of its downwardly extended shank being flattened on its opposite sides and terminating in a screw-threaded portion 17 of reduced diameter, and such shank of such king-bolt 10 is disposed to extend downwardly through a vertically disposed hole provided in an enlarged portion of the axle 6 at a point midway of the length of such axle 6 whereby the flange 16 may rest upon and be supported by the top surface of such enlarged portion of said axle 6, and whereby said axle 6 may be permitted rotatively to move in a horizontal plane, and such king-bolt 10 is secured in its vertical position by a nut 18 disposed on the screw-threaded portion 17.

Upon the flattened portion of the lower end of the downwardly extended shank of the king-bolt 10, adjacent to the under-surface of the axle 6, is fixed the broad end portion of a curved detent spring 19 which broad end portion is provided with an oblong hole whose parallel longer sides engage with the sides of the flattened portion of the lower end portion of the shank of the king-bolt 10, the nut 17 being disposed to secure said detent spring 19 in its position on said king-bolt.

The detent spring 19 is formed to project forwardly to curve upwardly and rearwardly, its upwardly extended free end portion 21 being indented and the convex rearwardly projecting side of such indented portion 21 is disposed forcibly to engage with the front edge 22 of the enlarged portion of the axle 6 which front edge 22 is of the form of a circle that is concentric with the king-bolt 10, as indicated more clearly in Fig. 3, and such front edge 22 is provided with a vertically disposed notch 20 within which the free end of the detent spring 19 may enter yieldingly to maintain the axle 6 in a position at right angles with the longitudinal axis of the board 9.

Integral with the underside of the rearward portion of the bracket 13 is formed the segment of a beveled gearwheel 23 whose teeth are disposed to adapt them to mesh with the teeth of a corresponding segment

of a bevel gearwheel 24 which is integral with the rear side of the enlarged portion of the axle 6, whereby, when the board 9 is tipped to rotatively move on the pivot rod 11 of both the front and rear trucks to raise or lower one of the longitudinal edges of the board 9 then the said two segments 23 and 24 of bevel gearwheels will coact to rotatively move the axle 6 in a horizontal plane, thus to cause the moving structure to be steered to turn its course toward that side of its straight course which corresponds to the lowest one of the longitudinal edges of said board 9.

Extending rearwardly, one from the enlarged portion of the axle 6 of the front truck and one forwardly from the corresponding enlarged portion of the axle 8 of the rear truck, are arms, as arms 25 shown in Fig. 4 and arms 25 shown in Fig. 1, to the end of each of which arms is connected one end of a helical tension spring 26 whose other end is attached to the adjacent one of two brackets 27 that are secured to the underside of the board 9 in the central portion of its width, whereby the force of such tension springs 26 may tend to maintain the axles 6 and 8 of the front and rear trucks, respectively, in positions that are at right angles to the longitudinal axis of the board 9.

Secured to the top surface of the board 9, near its front end portion and midway between its longitudinal side edges, is an internally screw-threaded socket 28 into which socket 28 is secured a metal post 29 which is disposed to lean slightly in a rearward direction and which post 29 may be grasped by the hands of the operator as he stands upon the board 9 in the act of riding on the structure thus to support him as he sways his body sidewise in the operation of tipping the board 9 to rotatively move the board 9 on the pivot rods 11 in the operation of steering the structure. I have shown the post 29 as being provided with a transversely disposed handle-bar 30 which may conveniently be grasped by the operator's hands, but such handle-bar 30 may be dispensed with if desired, in which case the post 29 itself would be grasped by the operator's hand.

In the operation of steering, the segments 23 and 24 of beveled gearwheels on each of the trucks will act in response to the swaying of the rider's body and the post 29 to cause the axle 6 of the truck to turn in one direction while the axle 8 of the rear truck will turn in the opposite direction thus enabling the structure in its travel to turn a circle of small radius, but, obviously, the segments 23 and 24 of the rear end of the structure may be dispensed with, if desired, but in such case the structure could be turned only in a circle in a larger radius.

The operation of my coaster is as follows: The operator disposes the structure at the top of a hill down which he is to coast and then mounts the board 9 in a standing position with his hands grasping the handle-bar 30 or the post 29 whereupon the coaster by gravity will travel down the hill in a straight line so long as the plane of the board 9 is evenly disposed and if he desires to steer the coaster to change its course toward the right hand he sways his body toward the right hand and at the same time forcibly sways the post 29 in the same direction, but if he desires to change the course toward the left hand he sways his body toward the left hand and at the same time forces the post 29 in a like direction.

Manifestly changes may be made in the forms, dimensions and arrangement of parts of my invention without departing from the spirit thereof.

What I claim is:

1. A coaster of the class described, the combination with two trucks each of whose axles is provided with a king-bolt hole disposed to extend downwardly through its central portion, of a segmental portion of a beveled gearwheel fixed to the central portion of the rear side of the axle of the front one of said two trucks; a like segmental portion fixed to the central portion of the front side of the axle of the rear one of said trucks; a board upon which an operator may stand in an upright position; a bracket secured to each end of said board; a king-bolt pivotally attached to each of said brackets to extend downwardly therefrom, said king-bolts being each provided with an annular flange below which its shank extends, the said shank of each of said king-bolts being disposed within said king-bolt hole in the axle of a different one of said two trucks with its annular flange resting upon the top surface of said axle and with its lower end projecting downwardly through the bottom thereof, whereby said board may be tipped in sidewise directions; a segmental portion of a beveled gearwheel integrally associated with the underside of each of said brackets and disposed to adapt it to engage its teeth with the teeth of the segmental portion of the beveled gearwheel associated with the adjacent axle, and yielding means for normally maintaining each of said trucks in a position at right angles to the longitudinal axis of said board.

2. A coaster of the class described, embodying front and rear trucks, a board adapted to support a rider in a standing position thereon, each end of said board being pivotally mounted on the axle of a different one of said trucks by pivotal means adapted to permit said board to tip in sidewise directions and to permit the axles of said trucks to rotatively move in a horizon-

tal plane; segmental portions of two bevel gearwheels associated with each end of said board and with the axle of the adjacent truck whereby when said board is tipped in a sidewise direction then the axles of both of said trucks will be caused each to rotatively move each in opposite directions in a horizontal plane, and yielding detent means for normally maintaining the axles of both trucks in a position at right angles to the longitudinal axis of said board.

In witness whereof, I hereunto subscribe my name this eighth day of January, A. D., 1915.

FRANCIS X. LA CHALL.

Witnesses:

FRANK WARREN,

O. JOHNSON.