W. E. SHERWOOD.

COASTER.

APPLICATION FILED MAY 16, 1914.

1,224,575.

Patented May 1, 1917.

2 SHEETS—SHEET 1.

Fig. 1.

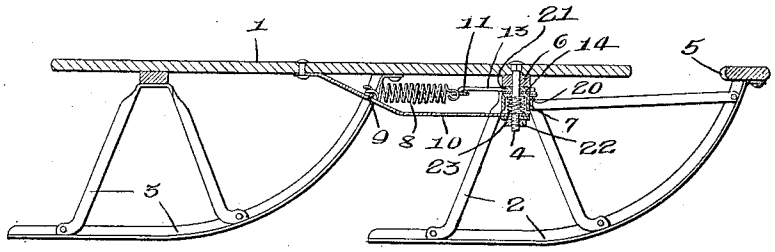
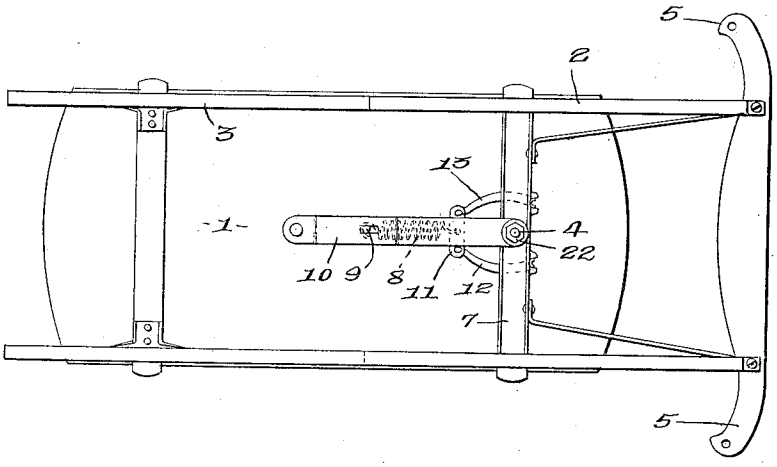


Fig. 2.



Witnesses:
Chas. H. Young.
Jane Chaffee.

William E. Sherwood Inventor
By Attorneys.
Parsons Hall & Bodell

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

W. E. SHERWOOD.

COASTER.

APPLICATION FILED MAY 16, 1914.

1,224,575.

Patented May 1, 1917.

2 SHEETS—SHEET 2.

Fig. 3.

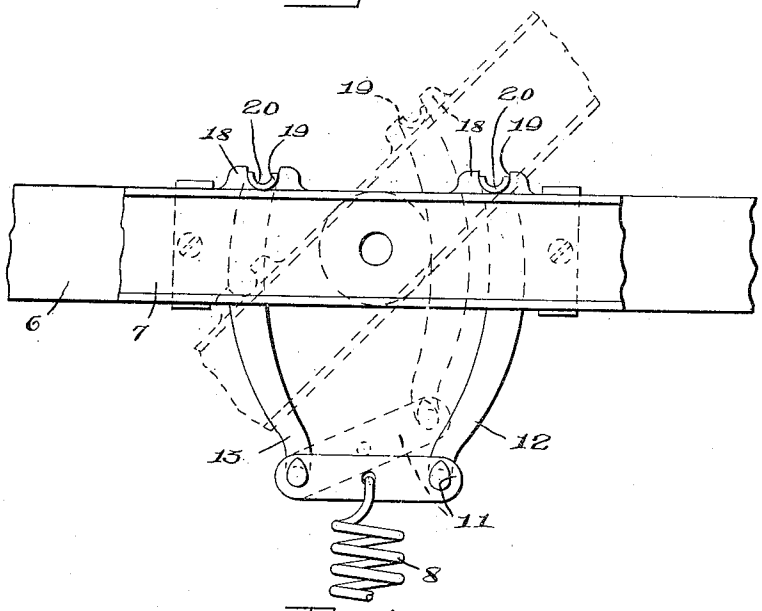


Fig. 4.

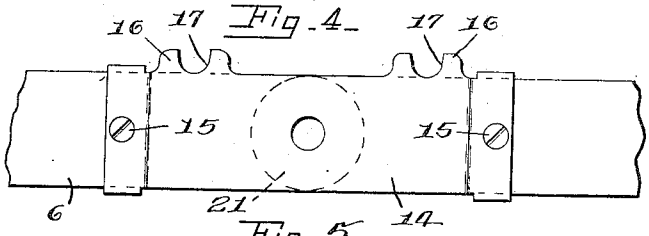
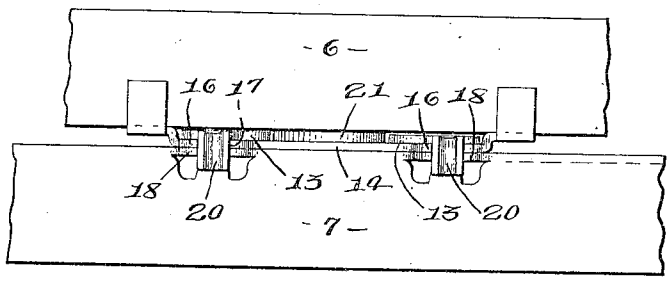


Fig. 5.



Witnesses:

Chas. Hyman.

Jane Gleason

William E. Sherwood Inventor

By Attorneys:

Parsons Hall & Bodell

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

WILLIAM E. SHERWOOD, OF CANASTOTA, NEW YORK.

COASTER.

1,224,575. Specification of Letters Patent. Patented May 1, 1917.

Application filed May 16, 1914. Serial No. 838,916.

To all whom it may concern:

Be it known that I, WILLIAM E. SHERWOOD, a citizen of the United States, and a resident of Canastota, in the county of Madison and State of New York, have invented a certain new and useful Coaster, of which the following is a specification.

This invention relates to coasters having front and rear sleds, or pairs of wheels, and in which the front sled or pair of wheels can be turned to steer the coaster, and it has for its object a particularly simple and efficient spring means by which turning of the front sled or pair of wheels is resisted and the sleds or wheels normally held straight; and the invention consists of the novel combinations and constructions hereinafter set forth and claimed.

In describing this invention, reference is had to the accompanying drawings, in which like characters designate corresponding parts in all the views.

Figures 1 and 2 are, respectively, a longitudinal section and an inverted plan view of one form of this coaster.

Fig. 3 is a fragmentary view illustrating in plan, the connection between the spring means and the front sled member and the body of the coaster.

Fig. 4 is an inverted plan view of the cross-bar of the body and parts associated therewith.

Fig. 5 is an elevation looking downwardly in Fig. 3, parts being omitted.

This coaster, comprises, generally, a body, supporting members for the body, as front and rear sleds or pairs of wheels, one supporting member being turnable laterally in opposite directions relatively to the body, and spring means connected to the turnable supporting member on opposite sides of its axis and being connected to said member on one side of its axis to resist turning movement in one direction and on the other side of its axis to resist turning movement in the opposite direction. Usually the front supporting member is pivoted and the rear supporting member rigid, but it might in some instances be desirable to reverse this arrangement.

I have here shown my invention as embodied in a bob-sled, and 1 is the body in the form of a top board, and 2 and 3 are front and rear supporting members or sleds, the front sled being pivoted at 4 to the body and the rear sled being fixed thereto. The front sled has foot pieces 5 by means of which it is turned to the right or left.

As here shown, the spring means includes branches connected to the sled 2 on opposite sides of its axis 4 by connections effective only in one direction. Usually said connections include lost motion devices which make them ineffective or practically idle when the pivoted sled is turned in one direction or the other, one connection being idle while the other is active, that is, one connection is active while the sled is being turned to the right and the other connection is active when the sled is being turned to the left. As here shown each of said branches has portions engaging a fixed part of the body 1 and the front sled 2 on opposite sides of the pivot 4 so that the force of the spring means is received by the body when the sled 2 is in central position, that is, it is not turned to the right or left; hence when the sled 2 is turned in one direction, it engages the branch of the spring means on one side of its axis and moves free of, or separates from, the branch of the spring means on the other side of its axis.

As here shown, the body 1 is formed with a bearing piece, as a cross-bar, or bolster 6, and the front sled is formed with a bearing piece or a cross-bar 7 underlying the cross-bar 6, and the pivot 4 extends through the cross-bars. The cross-bar 7 is a channel-iron arranged with its channel facing downwardly. The spring means includes a single coiled spring 8 pivoted at its rear end at 9 to a bracket or brace 10 fixed to the under side of the body 1, said spring being connected at its front end to an equalizing lever 11, connected at its opposite ends to the cross bar 7 and fulcrumed at its opposite ends. The opposite ends of said lever 11 are connected to the rear ends of arms or links 12, 13 and have fulcrum points at the rear ends of said links. The links 12, 13, are connected at their ends to the sled 2 on opposite sides of its axis, the connection between each link and the sled being effective on the sled only in one direction of movement of the

sled, one being effective on the sled during turning of the sled to the right, and the other during turning to the left.

In the illustrated embodiment of my invention, the opposing faces of the cross-bars 6 and 7 are separated by a plate 14, located centrally of the bars 6 and fixed at its end at 15 to the face of the bar 6 and having its intermediate portion offset therefrom, this plate 14 being provided with forwardly extending lugs 16 located on opposite sides of the axis 4, which lugs are formed with notches or open ended slots 17. The cross-bar 7, which as before stated, is a channel iron, has two forwardly projecting lugs 18 struck therefrom which are provided with notches 19 normally alined with the notches 17.

The links 12, 13, extend between the bar 6 and the offset portion of the face plate 15 and are provided with shoulders or down-turned hooks 20 at their front ends, which are normally arranged in the notches 17, 19.

A washer 21 is mounted on the pivot or king bolt 4 between the face plate 14 and the lower face of the cross-bar 6, which washer is engaged by the links when the sled turns a certain amount, and hence forms a stop which determines the amount the sled 2 can be turned in either direction, and also a fulcrum between the ends of each link, so that each link becomes a lever, when an attempt is made to continue turning the sled after the link engages the washer, and the spring acts with greater effect through the link-lever.

The brace 10 is extended forwardly under the channel bar 7, and the pivot 4 extends through the brace, a shoulder or nut 22 thereon bearing against the lower side of the brace. A spring 23 is inserted between said bracket 10 and the web of the channel bar 7 and this spring takes up any looseness about the pivot between the bars 6, 7.

In operation, when the sled is being turned, as for instance to the right, the lug 18 on the left side of the center pivot 4 pushes forwardly against a hook or shoulder 20, of the left link 12 and separates from the left lug 16, while the shoulder or hook 20 of the right link 13 remains engaged with the right lug 16, and the right lug 18 of the cross bar 7 of the sled 2 moves rearwardly and separates from the shoulder or hook 20 of the right link 13, as shown in Fig. 3. The pull of the link 12 tensions the spring 8 which tends to return the sled to its central position. The shoulder or hook 20 remaining in its starting position, acts as a stop to prevent overthrow of the sled 2 when it is being returned to central position by the spring. The tension of the spring 8 and the leverage between the same and the sled 2 is sufficient to hold the sled in central position so that the coaster can be used as if the front and back sleds were one, or can be steered by turning the front sled to the right or left.

This steering coaster is particularly advantageous in that it can be made as short as what are commercially known as flexible runner sleds; and can be steered around comparatively small angles by turning the front sled.

What I claim is:

1. A coaster comprising a body, front and rear supporting members for the body, one of said members being turnable laterally in either direction relatively to the body, a lever turnable with the turnable member and connected at its opposite ends to said member and movable with the turnable member about axes located on opposite sides of its center, and a spring connected to the lever intermediate of the ends thereof and to the body of the sled, substantially as and for the purpose described.

2. A coaster comprising a body, front and rear supporting members for the body, one of said members being turnable laterally in either direction relatively to the body, a lever connected to said member to be turned thereby, and having fulcrums located on opposite sides of the center of said lever, and spring means for returning said lever and said member to their central position and to resist lateral turning thereof, substantially as and for the purpose specified.

3. A coaster comprising a body, front and rear supporting members, one member being turnable in either direction relatively to the body, a lever connected to said member to be turned thereby, and a spring connected to the lever, the lever having fulcrum points at points spaced apart so that the spring is tensioned when the member is moved in either direction, substantially as and for the purpose set forth.

4. A coaster comprising a body, front and rear supporting members, one member being turnable in either direction relatively to the body, a lever connected to said member to be turned thereby, and a spring connected to the lever, the lever having fulcrum points at points spaced apart, the spring being connected to the lever between the fulcrum points, substantially as and for the purpose described.

5. A coaster comprising a body, front and rear supporting members for the body, one member being pivoted to the body, links pivotally connected to said member on opposite sides of its pivot, a cross piece connected to the links, and spring means connected to the cross piece, the cross piece being movable about an axis on one side of its center when the pivoted member is turned to the right and about an axis on the other side of its center when the pivoted member is turned to the left, substantially as and for the purpose specified.

6. A coaster comprising a body, front and rear supporting members for the body, one member being pivoted to the body, a lever, a spring connected to the lever, means connecting the lever on opposite sides of its center to the pivoted member on opposite sides of the pivot thereof, the lever being movable about fulcrum points on opposite sides of its center, substantially as and for the purpose set forth.

7. A coaster comprising a body, front and rear supporting members for the body, one member being pivoted to the body, a lever, a spring connected to the lever, links connecting the lever on opposite sides of its center to the pivoted member on opposite sides of its pivot, the links being connected to one of the parts they connect by lost motion connections, the lever being movable about the point of connection between it and the left-hand link when the pivoted member is turned in one direction and being movable about the point of connection between it and the right-hand link when the pivoted member is moved in the other direction, substantially as and for the purpose set forth.

8. A coaster comprising a body, front and rear supporting members for the body, one member being pivoted to the body, a lever, a spring connected to the lever, links connecting the lever on opposite sides of its center to the pivoted member on opposite sides of its pivot, the links being connected to one of the parts they connect by lost motion connections, said connections being located at the point the links coact with the pivoted member, the lever being movable about the point of connection between it and the left-hand link when the pivoted member is turned in one direction, and being movable about the point of connection between it and the right-hand link when the pivoted member is turned in the opposite direction, substantially as and for the purpose described.

9. A coaster comprising a body, front and rear supporting members for the body, the front supporting member being pivoted, and spring means having branches normally bearing on the body and on the pivoted member on opposite sides of its axis, the branches having portions arranged in the path of the pivoted member, one of said portions being arranged to be engaged by the pivoted member when the same moves in one direction and the other to be engaged by the pivoted member when it moves in the opposite direction, substantially as and for the purpose described.

10. A coaster comprising a body, front and rear supporting members for the body, the front member being pivoted to the body, and spring actuated means including branches normally acting on the body on opposite sides of the axis of the pivoted member, the branches having shoulders arranged in the path of portions of the pivoted member on opposite sides of the axis thereof, to be engaged thereby when the pivoted member is turned in opposite directions, substantially as and for the purpose specified.

11. A coaster comprising a body, front and rear supporting members for the body, the front member being pivoted to the body, and the body and the front member being formed with cross-bars one overlying the other, the upper cross-bar bearing on the lower, and the pivot extending through the cross-bars, spring actuated means having branches provided with shoulders bearing against one side of the cross-bar of the body, said branches having portions arranged in the path of the corresponding side of the cross-bar of the pivoted member and on opposite sides of the axis of said member, substantially as and for the purpose set forth.

12. A coaster comprising a body, front and rear supporting members for the body, the front supporting member being pivoted to the body, a coiled spring arranged substantially centrally of the body and extending lengthwise thereof and connected at one end thereto, and means connecting the other end of the coiled spring to the pivoted member including branches connected to said member on opposite sides of its axis, each of said branches being connected to the pivoted member by a connection effective only during movement of the pivoted member in one direction, substantially as and for the purpose described.

13. A coaster comprising a body, supporting members for the body, the front member being pivoted to the body, a spring, an equalizing lever connected to the spring, and links connecting opposite ends of the equalizing lever and the pivoted member, the links being connected to said member on the opposite sides of the pivot and each link being connected thereto by a connection effective only during movement of the pivoted member in one direction, substantially as and for the purpose specified.

14. A coaster comprising a body, supporting members for the body, one member being pivoted to the body, a spring, an equalizing lever connected to the spring, and links connecting opposite ends of the equalizing lever and the pivoted member on opposite sides of its pivot, the links being pivoted to opposite ends of the lever, substantially as and for the purpose specified.

15. A coaster comprising a body, front and rear supporting members, the front member being pivoted to the body, and spring means for resisting pivotal movement thereof and holding the same in central position, said means including branches extending on opposite sides of the axis of the pivoted member and normally bearing

against the body and the pivoted member, one branch being movable with the pivoted member and separable from the body when the said member moves in one direction, the other branch being movable with the pivoted member and separable from the body when said member is moved in the opposite direction, either branch remaining in contact with the body when the other branch separates from the body, substantially as and for the purpose set forth.

16. A coaster comprising a body, front and rear supporting members, the front member being pivoted to the body, and spring means for resisting pivotal movement thereof and holding the same in central position, said means including links extending on opposite sides of the axis of the pivoted member and normally bearing against the body and the pivoted member, one link being movable with the pivoted member and separable from the body when said member moves in one direction, the other link being movable with the pivoted member and separable from the body when said member is moved in the opposite direction, either link remaining in contact with the body when the other link separates from the body, an equalizer pivoted at its opposite ends to the links, and a spring connected to the equalizer between its ends, substantially as and for the purpose described.

17. A coaster comprising a body, front and rear supporting members for the body, the front member being pivoted to the body and comprising a cross-bar through which the pivot extends, the cross-bar being a channel iron arranged with its channel facing downwardly, a shoulder on the lower end of the pivot, a brace fixed at its rear end to the underside of the body and having its front end mounted on the pivot above said shoulder, and a spring interposed between the front end of the brace and the central web of the cross-bar, substantially as and for the purpose set forth.

18. A coaster comprising a body, front and rear supporting members for the body, the front member being pivoted to the body and comprising a cross-bar through which the pivot extends, a shoulder on the lower end of the pivot, a brace fixed at its rear end to the underside of the body and having its front end mounted on the pivot above said shoulder, and spring means connected to the pivoted member and the body and tending to hold the pivoted member in its central position and to resist pivotal movement thereof in either direction, said means comprising a spring connected at its rear end to the brace and connections between the front end of the spring and the cross-bar and body on opposite sides of the axis of the pivoted member, substantially as and for the purpose described.

19. A coaster comprising a body, front and rear supporting members for the body, the front member being pivoted to the body, the body and the front member having upper and lower bearing pieces respectively, and a pivot passing through the bearing pieces, the upper cross-bar having a face plate the intermediate portion of which is offset therefrom, the face plate being formed with notches on its front side arranged on opposite sides of the axis of the pivoted member, and the lower bearing piece having notches on its front side normally alined with the former notches, and spring means connected to the pivoted member and to the body and tending to hold the pivoted member in its central position and to resist pivotal movement thereof in either direction, the spring means including links extending on opposite sides of the axis of the pivoted member and between the face plate and the upper bearing piece, the links having angularly arranged shoulders extending into the alined notches, substantially as and for the purpose specified.

20. A coaster comprising a body, supporting members for the body, the front member being pivoted to the body, a spring, an equalizing lever connected to the spring, links connecting opposite ends of the equalizing lever and the pivoted member, the links being connected to said member on the opposite sides of the pivot and each link being connected thereto by a connection effective only during movement of the pivoted member in one direction, and a fulcrum arranged to engage the link being actuated between the ends of said link after the sled has turned a predetermined distance, substantially as and for the purpose set forth.

In testimony whereof, I have hereunto signed my name in the presence of two attesting witnesses, at Syracuse, in the county of Onondaga, in the State of New York, this 6th day of May, 1914.

WILLIAM E. SHERWOOD.

Witnesses:
S. DAVIS,
JANE GLAZIER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."