July 4, 1967 W. GEBIEN 3,329,439

ICE SPORT DEVICE

Filed Jan. 5, 1966

Fig. 1.

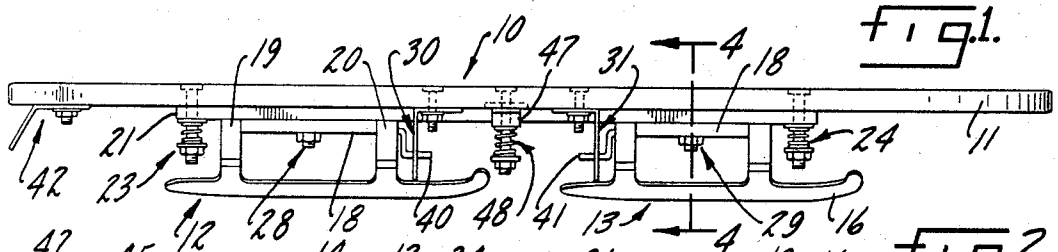
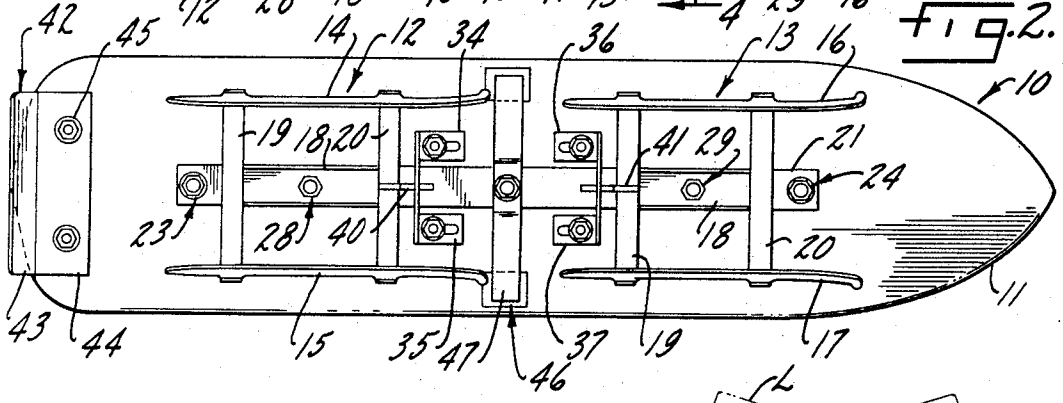
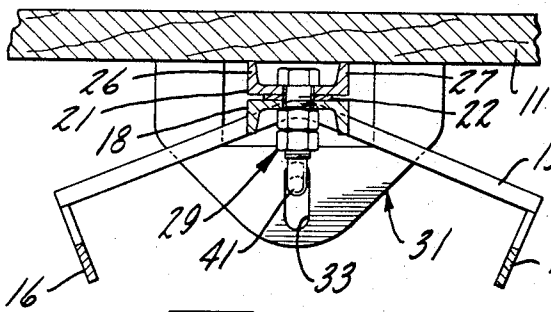


Fig. 2.





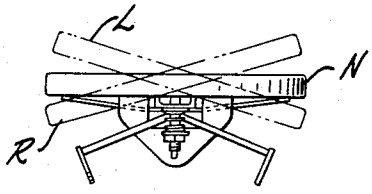


Fig. 3.

Fig. 4.

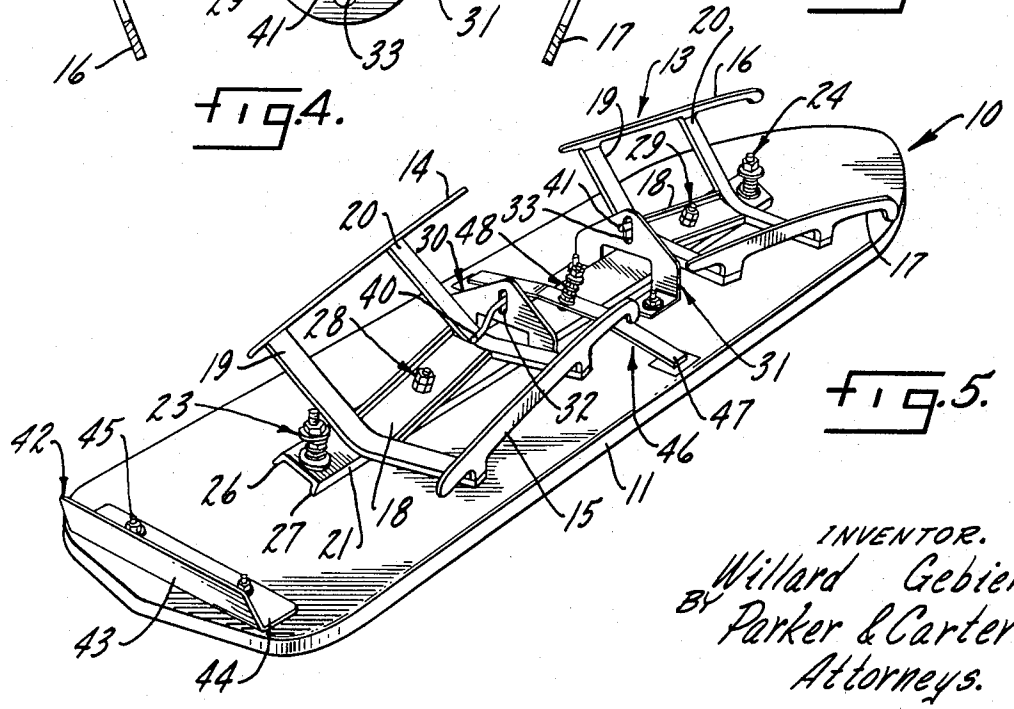


Fig. 5.

INVENTOR.
Willard Gebien,
BY Parker & Carter
Attorneys.

United States Patent Office

3,329,439

Patented July 4, 1967

3,329,439

ICE SPORT DEVICE

Willard Gebien, 1095 W. Park, Libertyville, Ill. 60048

Filed Jan. 5, 1966, Ser. No. 518,925

6 Claims. (Cl. 280—16)

My invention relates to winter sports, and particularly to a device for leisure time ice sport activity which has more mobility than ice skates and can be used by one or more persons without any additional equipment.

Essentially my device consists of a board or support platform mounted on a pair of tandemly disposed sets of runners. The runners are mounted for tilting movement with respect to the platform, and for canting movement with respect to the centerline of the device. When a rider shifts weight to one side or the other of the centerline of the device, the front set of runners cants or turns in the direction of the weight shift, and the rear set of runners turn in the opposite direction. This turning relationship occurs irrespective of the point of application of the unbalanced weight on the support platform. My device has the further feature of a built in stabilizing effect in that there is an initial resistance to tilting of the board with respect to the ice surface so that something more than a slight imbalance is required to tilt the support platform.

Accordingly an important object of my invention is to provide an ice sport device which has equal or greater mobility than a pair of ice skates and can be used by one or more persons of almost any age without any additional equipment.

Another object is to provide an ice sport device having a support platform mounted on co-operating, tandemly arranged sets of runners which cant in opposite directions from the centerline of the device whenever an unbalanced weight is placed on one side or the other of the support platform.

Another object is to provide a device such as above described in which the runners cant approximately the same amount irrespective of the point of application of the unbalanced force along the length of the support platform.

Yet a further object is to provide an ice sport device as above described in which all runners in each set of runners make contact with the ice on turns, and sliding on turns is thereby virtually eliminated.

Another object is to provide an ice sport device as above described which is capable of being quickly stopped without first shifting the relative position of the runner to the ice.

Yet another object is to provide an ice sport device of the type described above in which the turning responsiveness of the device can be easily varied by a simple adjustment.

Other objects and advantages of the invention will become apparent from a reading of the following description of the invention.

The invention is illustrated more or less diagrammatically in the accompanying drawing wherein.

FIGURE 1 is a side elevation;

FIGURE 2 is a bottom plan view;

FIGURE 3 is a front view with parts omitted for clarity;

FIGURE 4 is a view taken substantially along the line 4—4 of FIGURE 1; and

FIGURE 5 is a perspective view of my device in a turned condition as viewed from beneath.

Like reference numerals will be used to refer to like parts throughout the following description of the drawing.

My device is indicated generally at **10** in FIGURE 1. It consists essentially of a board or support platform **11** which, as best seen in FIGURES 2 and 5, may have an airfoil shape. It will be understood of course that any suitable configuration may be employed within the scope of the invention.

Two runner sets are indicated generally at **12** and **13**. Each runner set consists of a pair of runners **14, 15** and **16, 17** respectively. Each pair of runners is mounted on a runner frame or truck of similar construction, only one of which will be described.

The runner frame or truck for runner set **12** consists of a longitudinal member **18** which is welded or otherwise suitably connected at each end to a pair of inverted V shaped arm members **19, 20**. Each runner frame is pivotally connected by a bolt assembly **28, 29** to a tilt transmitting member or bar **21**. As best seen in FIGURE 4 each bolt assembly comprises a bolt received in a pair of aligned, oversized holes in the tilt bar **21** and the longitudinal frame member **18**, these two members being spaced from one another by a washer **22**.

The tilt bar **21** is of a rigid, unitary construction and extends from one runner set to the other as best seen in FIGURES 1, 2 and 5. It is mounted for tilting movement with respect to the support platform **11** by a pair of adjustable tension spring assemblies **23** and **24**. As can be best visualized from FIGURE 5 the tilt bar **21** is non circular in shape so that it may be positively displaced away from the support platform **11**. In this instance a U shaped channel member has been employed, the channel member being so oriented that the member **21** is able to tilt about the free edge of each of legs **26** and **27**.

The structure for canting the runner sets with respect to the centerline of support platform **11** consists essentially of a pair of turning brackets **30, 31**, each of which is formed in roughly the shape of a U as can be best seen in FIGURE 4. A cam track or slot **32, 33** is formed in the U shaped portions of each of brackets **30, 31** respectively. Each turning bracket terminates in a pair of flanges, indicated at **34, 35** and **36, 37**. Bolts or other suitable securing means fasten the turning brackets **30, 31** to the under side of support platform **11**. Slots may be provided in flanges **34–37** to enable the position of the turning bracket to be varied forward and backward with respect to the vertical turning axis of each runner frame for a purpose which will appear hereinafter, said vertical turning axis being the centerline of belt assembly **28** in this instance.

A roughly Z shaped cam is indicated at **40** and **41**, each cam member projecting into an associated slot in an adjacent turning bracket. Each cam member is welded or otherwise rigidly carried by its associated runner set.

A brake is indicated generally at **42**. In this instant the brake comprises a flat plate having a downturned portion **43** which extends toward the ice. The horizontal portion **44** is secured by bolts **45** to the underside of the support platform.

Additional means for stabilizing my device are indicated at **46**, said means including, in this instance, a leaf spring **47** which is biased by coil spring **48** against tilt bar **21** and the under side of the support platform.

The use and operation of my device are as follows.

The user steps or sits on support platform **11** at any position between the extremities of the runners. Motive power may be supplied by placing one foot on the support platform and pushing off with the other foot. If desired, an abrasive surface can be applied to the upper plain surface of support platform **11** to ensure a good grip thereon.

If it is desired to make a left turn, the rider merely shifts his weight to the left of the centerline. Leftward movement of the rider's weight causes the platform **11** to shift from the stabilized neutral condition N of FIGURE 3 to the left turn position L of FIGURE 3. Since double runners are employed both runners will remain in contact with the ice but tilt bar **21** will be tilted with respect to support platform **11** as indicated best in FIGURE 5 which, it will be understood, shows the conditions of the runner sets during a left turn. Because of the action of cam follower **41** in cam track **33**, the runner set **13** is canted leftward from the centerline of the support platform. By the same token, the action of cam follower **40** in cam slot **32** will cause runner set **12** to shift to the right. This simultaneous double, opposite shifting of the runner sets **12** and **13** enables the rider to make very tight, short radius turns and precludes sliding and scraping of the runners over the ice as is the case when only the front set of runners is canted. Furthermore, it will be noted that because of the rigidity of tilt bar **21** the unbalance weight application can be made at any point within the extremities of the runner sets and the same amount of tilting effect will be provided. This is of advantage in that it enables a rider who is standing to place one foot ahead of the other, thereby improving his balance. Furthermore, the responsiveness of tilt may be easily varied of two ways. By simply tightening or loosening the spring assemblies **23**, **24** and **46**, the amount of force required to tilt a given amount can be easily varied. In addition, the turning radius of the device can be varied by adjusting the position of the turning brackets **35**, **36** with respect to the turning axis of the pivot assemblies **28** and **29**. Thus, by moving the turning brackets **34**, **35** closer to their respective pivot assemblies **29** and **28**, a greater canting or turning effect will be provided for a given weight displacement. As the user becomes more familiar with the device he may wish to move the turning brackets **30**, **31** toward their associated pivot assemblies so as to execute more intricate turning maneuvers with minimum exertion.

The runners **14–17** have a slight curvature as indicated in FIGURE 1. This is a preferred form because it contributes to low friction during turns and straight runs. The blade portions of the runners may if desired be hollow ground and experience has indicated hollow ground blades to be desirable, but not essential.

The illustrated brake is only one of many that could be employed. However, the illustrated brake is especially advantageous in this application because it is activated by the rider shifting his weight to the rear. When the board rears up it is in a perfect attitude for the rider to maintain his balance, and thereby provides a stop movement with the board in the best possible position.

Although a preferred embodiment of the invention has been illustrated and described it will at once be apparent to those skilled in the art that modifications may be made within the spirit and scope of the invention. For example the camming arrangement which includes turning brackets **30**, **31** can be replaced with a functional equivalent such as a ball joint assembly. The sole function of these devices are to provide substantially equal, and simultaneous, turning movement to the front and rear runner sets **13** and **12** irrespective of the location and amount of unbalanced weight, and any means by which this may be accomplished is considered to be within the scope of the invention. Accordingly it will at once be apparent that the scope of the invention should not be limited by the foregoing exemplary description but solely by the scope of the hereinafter appended claims.

I claim:

1. An ice sport device, said device including, in combination,

a support platform,

two ice runner means carried by the support platform, said ice runner means being disposed in tandem, each ice runner means including a pair of runners which are disposed in fixed, spaced relation to one another in all positions of said ice runner means with respect to the support platform, the longitudinal axis of the support platform being located between the outermost runners in each pair of runners, and means for simultaneously canting the tandemly disposed ice runner means alike amount in opposite lateral directions from the longitudinal axis of the support platform in response to a weight imbalance applied to the support platform at one side of said longitudinal axis at any point between the extremities of the tandemly disposed ice runner means, said canting means including firstly, a bodily rigid tilt transmitting structural means disposed in tilting relationship to the support platform, and, secondly, means for translating tilting movement between the tilt transmitting structural means and the support platform into canting movement about a generally vertical axis of the ice runner means with respect to the support platform.

2. The ice sport device of claim **1** further characterized in that the aforesaid canting means further includes

yieldable means associated with the support platform effective, when the support platform is horizontal, to maintain the tilt transmitting structural means in a stabilized condition with respect to the support platform.

3. The ice sport device of claim **2** further characterized

firstly, in that the tilt transmitting structural means is a rigid member which extends from one runner means to another,

secondly, in that the ice runner means are mounted for pivotal movement with respect to the rigid tilt transmitting structural means, as well as canting movement with respect to the support platform, and

thirdly, in that the tilting movement translating means is a cam assembly, one portion of which is rigidly carried by the ice runner means and the other portion of which is rigidly carried by the support platform, said portions having a sliding connection.

4. The ice sport device of claim **3** further characterized in that

the yieldable means are springs which are biased to maintain the rigid tilt transmitting structural means in stabilized condition against the support platform.

5. The ice sport device of claim **1** further characterized

firstly, in that each ice runner means consists of a pair of runners which are maintained in fixed, spaced side-by-side relation by a rigid frame, and

secondly, in that the tilt transmitting structural means includes a rigid, non-circular tilt bar which is tiltable with respect to the support platform, and further including

spring means biased to urge the tilt bar into a stabilized condition with respect to the support platform whereby the support platform is urged into a horizontal position,

pivot structure connecting each ice runner frame to the tilt bar in pivotal relationship about an axis generally perpendicular to the tilt bar, and

a cam assembly for each pair of side-by-side runners,

each cam assembly including a cam surface carried by the support platform and a cam follower carried by the runner frame,

the cam assemblies associated with the pairs of runners being arranged to cant the pairs of runners in opposite

directions from the center line of the support platform upon tilting movement between the tilt bar and the support platform.

6. The ice sport device of claim 5 further including means for repositioning the cam assemblies with respect to the support platform to thereby vary the canting effect derived from a given weight displacement.

References Cited

UNITED STATES PATENTS

332,575	12/1885	Wheeler	280—16
569,459	10/1896	Hook	280—16

BENJAMIN HERSH, *Primary Examiner.*

L. D. MORRIS, *Assistant Examiner.*