



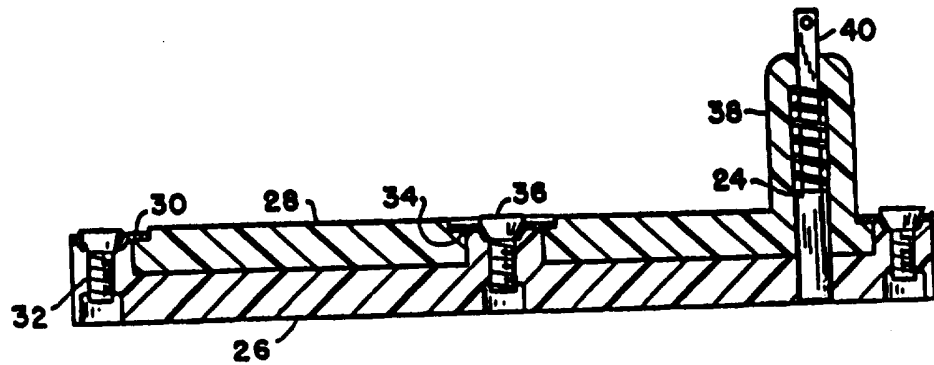
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(54) Title: SNOWBOARD BINDING TURNTABLE

(57) Abstract

A thin turntable (28) for the front binding (18) for a snowboard (16) enables the snowboarder to straighten the front-foot while walking. The turntable (28) comprises a base plate (26) which is secured to the snowboard (16), a table (28) which is rotatable on the base plate (26), a holddown ring (30) for securing the table (28) while permitting its rotation and a spring biased locking pin (24) which drops into holes in the surface of the base plate (26).



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## SNOWBOARD BINDING TURNTABLE

### TECHNICAL FIELD

This invention relates generally to winter-sports accessories, and in particular to a novel turntable for mounting the front binding on a snowboard.

### BACKGROUND ART

Snowboarding, an offshoot of skiing and a cross between skis and the surfboard, is becoming a very popular winter sport. On weekends at some of the popular ski resorts, about 60% of the snow revelers are now using snowboards. The sport is particularly popular with the young generation, some having developed it into a competitive athletic sporting event to earn points by performing various jumps and somersaults.

Snowboarders wear heavy boots that are strapped and locked into two bindings secured to the top surface of the snowboard. The method of securing the binding to the snowboard surface is usually with several strong machine screws or bolts into threaded sockets firmly anchored into the board at positions approximately 1/3 and 2/3 of the length of the board. The attachment of the bindings depends upon the snowboarder: some prefer to put the left foot in the forward binding and some prefer to use the right foot in the forward binding. In the snowboarding art, a board with binding equipped for the left foot forward is called "regular" and the board for right foot forward is called "goofy".

If the left foot is to be in the forward binding, then the snowboarder will face toward the right, his right foot will go into the rear binding which is mounted at right angles to the axis of the board and faces toward the right and his left foot will go into the forward binding which is preferably pointing at the most convenient angle of approximately 72° to the right of the axis of the board.

Snowboarders have both feet in the bindings only when they are running over the snow. It is necessary that they have the front foot in the binding when leaving a ski lift and usually necessary to have the front foot in the binding when walking to keep them from sinking in the snow. This means that, if the foot is released from the rear binding, the snowboarder will be trying to walk in a serious and uncomfortable pigeon-toed attitude that will likely result in embarrassing falls.

All this discomfort and the pigeon-toed walking is completely eliminated if either binding could be temporarily aligned with the axis of the snowboard. Then the snowboarder would leave his foot in the realigned binding, would walk with parallel feet, and could easily propel himself much as one would on a scooter or skateboard.

#### DISCLOSURE OF INVENTION

Accordingly, it is an object of the present invention to provide a snowboard binding permitting selective alignment of a snowboard user's forward foot with the board axis, to eliminate discomfort in movement when not actually running (i.e., "boarding") over the snow.

It is another object of the invention to provide a snowboard binding permitting selective alignment for running use either with a snowboard user's right forward foot or with the left foot forward.

Briefly described, the invention to be described is for a thin turntable which is secured to the surface of a snowboard and to which a conventional snowboard binding is secured. The turntable has a spring loaded positioning pin that locks the turntable into any one of three positions: aligned with the board axis or  $72^\circ$  on each side of the axis so that it may be used by any snowboarder. If desired, the positioning holes may be located at different places and, if desired, the turntable may be used for a rear binding so that it also may be made to rotate.

An advantage of the present invention is that it provides a snowboard binding selectively adjustable to accept a snowboarder's forward foot aligned with the board axis, or 72° on each side of the axis. With this adjustability a user may temporarily align the snowboard with the axis of the board, to facilitate walking movement or posturing with the feet parallel, rather than in an uncomfortable pigeon toed attitude. It follows that the present invention greatly reduces strain on snowboarder's lower limbs, reduces the likelihood of falls by snowboarders when walking, and is safer to all concerned when using ski lifts. A further advantage of this adjustability is that it permits use by any snowboarder, regardless of their preference for snowboarding with the right or left foot forward. This feature permits board vendors as well as equipment rental shops to stock fewer boards or shorten board setup times, to satisfy customer demand.

Another advantage of the invention is that it may easily be adapted for use with conventional existing snowboard designs, thereby permitting easy and economical change of existing manufacturing facilities to production of snowboards incorporating the invention.

### BRIEF DESCRIPTION OF DRAWINGS

In the drawings which illustrate the preferred embodiment of the invention:

Figure 1 is a plan view of a prior art snowboard showing the fixed positions of both forward and rear bindings;

Figure 2 is a plan view of a snowboard illustrating the forward binding attached to the turntable of the invention which is rotated to align the binding with the board axis;

Figure 3 is a sectional elevational view of the turntable; and,

Figure 4 is a plan view, partly in section, of the turntable.

### BEST MODE FOR CARRYING OUT THE INVENTION

Fig. 1 is a plan view of a typical snowboard 10 with bindings for a snowboarder who prefers his left foot in the forward binding 12 and the right foot in the rear binding 14. In such a case, the optimum angles for the bindings that will give the snowboarder maximum equilibrium and control of the board are to angle the forward binding 12 at 72° to the right of the longitudinal axis of the board 10 and the rear binding 14 at right angles to the axis pointing right. If the snowboarder prefers his right foot in the forward binding 12, both the forward binding 12 and the rear binding 14 must be changed so that the forward binding is angled 72° left of the axis and the rear binding is at right angles pointing left.

As previously noted, walking with one foot out of the binding is extremely difficult and could lead to embarrassing if not dangerous situations, which are eliminated by the turntable of the invention.

Fig. 2 is a plan view of a typical snowboard 16 with forward and rear bindings 18 and 20, but with the forward binding 18 mounted on a turntable 22. The turntable 22 is preferably Nylon plastic, having a total thickness of about 18 millimeters (3/4 inches), and a top that is circular with a diameter of about 23 centimeters (9 inches) that can be drilled and tapped, as required, for mounting virtually any type of binding. The turntable 22 has a spring biased pin lock release 24 which extends from the top surface to which is attached a conventional tether the other end of which snowboarders generally tie to their boot or belt to prevent the loss of their board in the event of a fall.

Fig. 3 is an elevational view in section of the turntable 22 and shows that it is comprised of three fundamental elements: a circular base plate 26 which is secured to the surface of the snowboard 16; a table 28 which may rotate on the surface of the base plate 26; and a holdown ring 30 which secures the table 28 to the base plate 26 and which is bolted to the base plate 26.

The base plate 26 is approximately 23 centimeters (9 inches) in diameter

and 12 millimeters (1/2 inch) thick. There is a one centimeter (3/8 inch) deep doughnut shaped recess in the top surface of the base plate 26 to receive the doughnut shaped table 28. The table has a six millimeter (1/4 inch) lip 32 around the lower surface and it is upon this lip that the holdown ring 30 is placed and bolted to the raised periphery of the base plate 26. A similar lip 34 is around the lower surface of the central hole of the doughnut shaped table 28 and the center of the table 28 is held down against the base plate 26 by a large washer and machine screw 36. Neither the machine screw 36 nor the holdown ring 30 are tightened against the rotatable table 28 but are tightened against the base plate 26 to thereby permit rotation of the table 28.

The table 28 is free to rotate and is locked only by the spring biased release pin 24 that engages holes or short radial slots in the base plate 26. The release pin 24 is within a hollow vertical housing 38 that is firmly attached to the table 28 and has a reduced size pin 40 extending from the top surface of the housing 38 to which may be attached the snowboard tether. A spring encircles the reduced size pin 40 beneath the housing 38 to urge the release pin 24 down against the base plate 26 and into the holes in the base plate. These holes may be short radial slots in the surface of the base plate 26.

Fig. 4 is a plan view of various sections of the turntable and illustrates the positions of the holes in the base plate 26. If the rotatable table 28 is aligned so that a forward binding 18 attached to its surface is aligned as illustrated in Fig. 2, the release pin 24 is located as shown in Fig. 4 and is in the hole in the base plate 26 representing axial alignment. With one foot in the forward binding 18, the snowboarder can easily walk or propel himself much as he would on a skateboard. But when the snowboarder desires to put both feet into the bindings, he only need lift the release pin 24 by the tether and rotate his foot and the forward binding 18 until the pin drops into the hole that is offset 72°.

### INDUSTRIAL APPLICABILITY

The inventive rotatable mounting for a snowboard binding is well suited for use in snowboards to facilitate safety when a user is moving with the board, but not actually running over the snow. By selective alignment of the forward binding 18, mounted on the turntable 22, so that the forward foot is aligned with the longitudinal axis of the board 16, users can eliminate the need for pigeon-toed walking (i.e., non-parallel foot movement), with its attendant higher strain on the lower body and likelihood of falls. Further, snowboards incorporating the present invention, with the binding adjusted in the above manner, will permit safer ingress, egress, and riding of ski lifts. This will greatly reduce prejudices against snowboards and their users by other ski lift passengers, ski equipment rental shops with legal liability concerns, and ski resorts which have heretofore banned snowboarding. It is therefore expected that snowboard users, ski equipment rental shops, and ski resorts will all express demand for snowboards using the present invention.

It is also felt that the present invention will be a highly sought after snowboard feature by ski equipment vendors and rental services. Since the invention permits easy and rapid adjustment of snowboards for both regular and goofy style riders (i.e., left foot forward and right foot forward riding), inventory can be reduced and set-up times for individual users can be reduced.

Finally, the present invention is easily incorporated into existing snowboard designs and manufacturing scenarios, which can reasonably be expected to greatly reduce any costs of converting production to snowboards incorporating the invention as well as to hasten overall acceptance of the invention.

For the reasons previously discussed, it is expected that the utility and industrial applicability of the present invention will be both significant and long-lasting in duration.



CLAIMS

1 1. A rotatable mounting for a snowboard binding, said mounting  
2 comprising:

3 a base plate for securing to the surface of a snowboard, said base plate  
4 having a central circular recessed portion surrounded by a raised ring;

5 a circular table for mounting a snowboard binding, said table having a  
6 diameter slightly less than that of said recessed portion and rotatable within said  
7 recessed portion;

8 a holdown ring secured to said raised ring on said base plate and overlying  
9 the outer surface of said circular table whereby said table is secured against  
10 vertical movement but free to rotate; and,

11 a locking pin in said circular table and engagable in one of a plurality of  
12 holes in said base plate for locking said table against rotation, one of said  
13 plurality of holes being positioned to align the snowboard binding substantially  
14 parallel with the longitudinal axis of said snowboard.

1 2. The mounting claimed in Claim 1 wherein said circular table has a thin  
2 peripheral lip around its outer edge, said holdown ring overlying said peripheral  
3 lip.

1 3. The mounting claimed in Claim 2 further wherein said circular table has a  
2 central hole therethrough, the edge of said table at said central hole having a thin  
3 lip.

1 4. The mounting claimed in Claim 3 further including a central bolt extending  
2 from said base plate, said bolt having a head that overlies the thin lip around the  
3 central hole in said circular table.

1       5.     The mounting claimed in Claim 1 wherein said locking pin extends from a  
2       housing attached to said circular table, said housing also containing a spring for  
3       biasing said locking pin downward toward said the surface of said base plate.

1       6.     The mounting claimed in Claim 5 wherein said base plate has a plurality of  
2       holes for engaging said locking pin, one of said plurality being positioned to align  
3       a binding along the longitudinal axis of said snowboard, one of said plurality  
4       positioned to align said binding approximately 72° from the longitudinal axis.

1       7.     The mounting claimed in Claim 5 wherein a portion of said locking pin  
2       extending from said housing may be used to attach a snowboard tether.

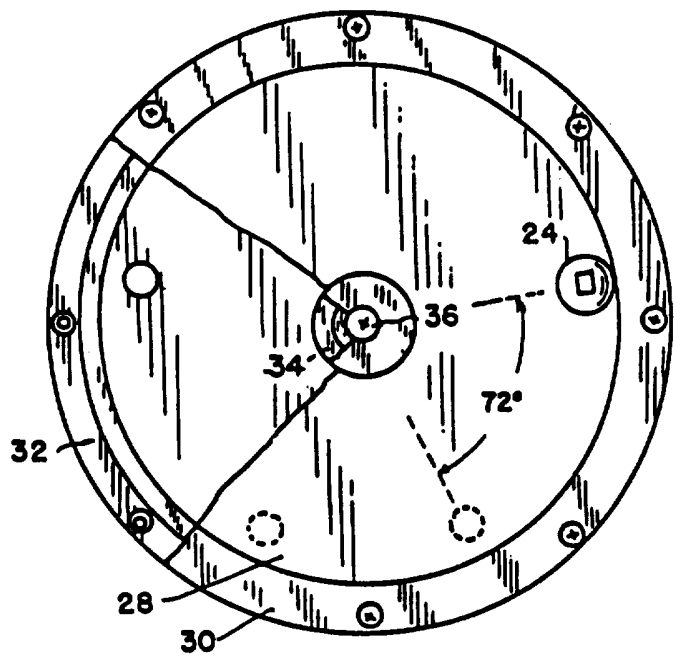
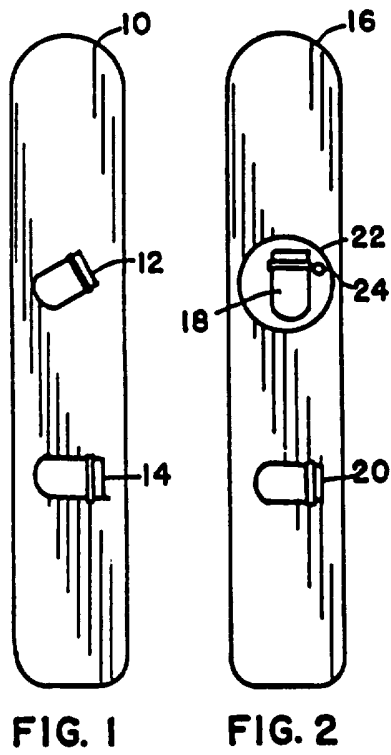


FIG. 4

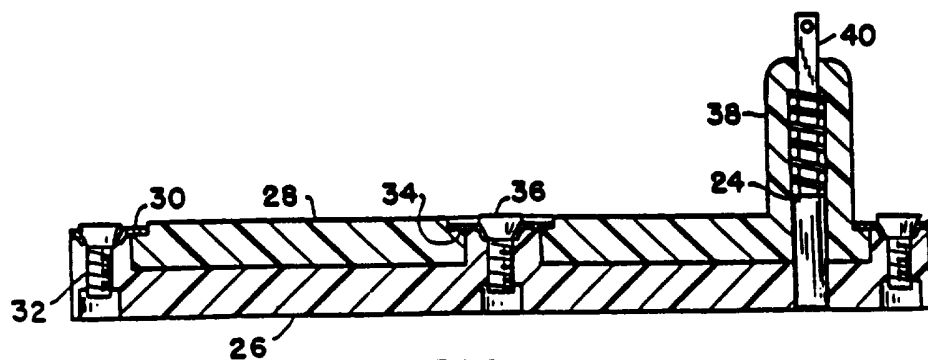


FIG. 3

**INTERNATIONAL SEARCH REPORT**

International application No.  
PCT/US96/01407

**A. CLASSIFICATION OF SUBJECT MATTER**

IPC(6) :A63C 9/02  
US CL :280/607, 617, 618, 629, 630, 14.2  
According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)  
U.S. : 280/607, 617, 618, 629, 630, 14.2

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched  
none

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
none

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US, A, 4,964,649 (CHAMBERLIN) 23 October 1990 See Fig. 7	1-7
Y	US, A, 5,354,088 (VETTER ET AL) 11 October 1994 See Fig. 8	1-7
Y	US, A, 5,044,654 (MEYER) 03 September 1991 See Fig. 2	3, 4

Further documents are listed in the continuation of Box C.  See patent family annex.

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