United States Patent

Krautter

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[54] WINTER-SPORT DEVICE

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[52] **U.S. Cl.** **280/16**

[51] **Int. Cl.** **B62b 13/14**

[58] **Field of Search** 280/16, 12, 21

[56] **References Cited**

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[57] **ABSTRACT**

A sport vehicle having a support ski supporting a frame, a steering ski mounted on the frame and adapted to be aligned with the support ski and outrigger skis having flexible connections to the frame to permit individual displacement of each outrigger ski by the foot between a normal position parallel to the axis of the frame and a plowing position in which the outrigger ski points forwardly and inwardly toward the longitudinal axis of the frame and in which the outer edge of the ski is elevated relative to its inner edge.

5 Claims, 6 Drawing Figures

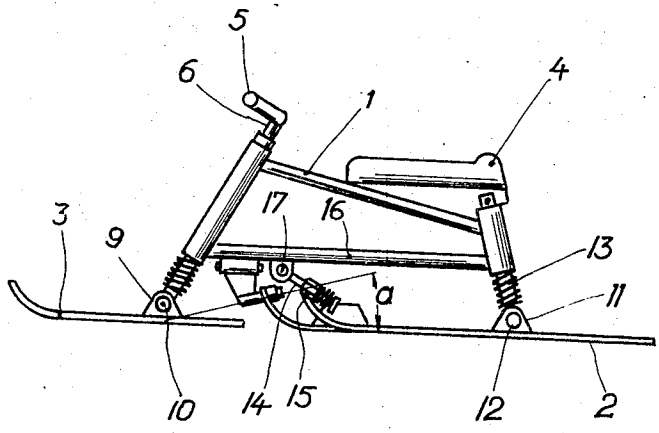


FIG. 1

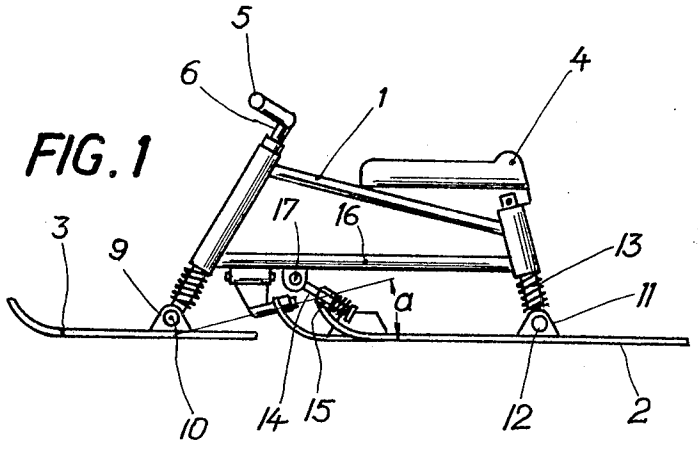


FIG. 3

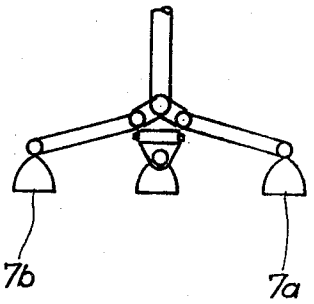


FIG. 2

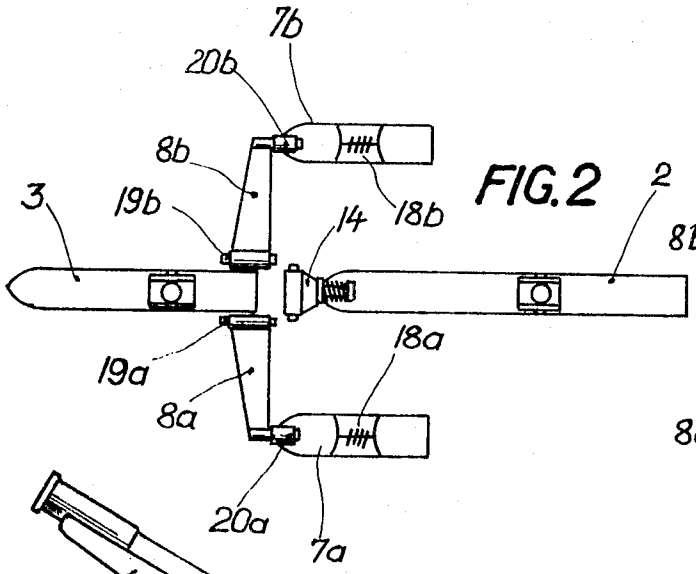


FIG. 4

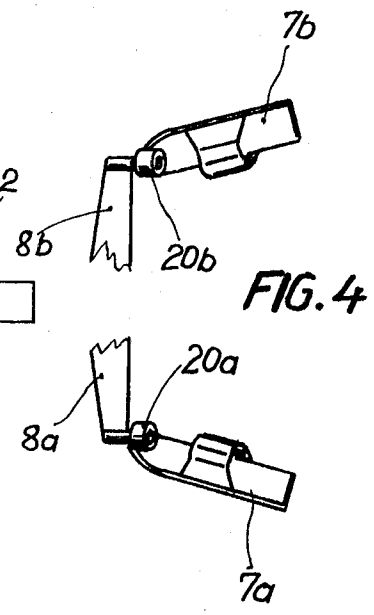


FIG. 5

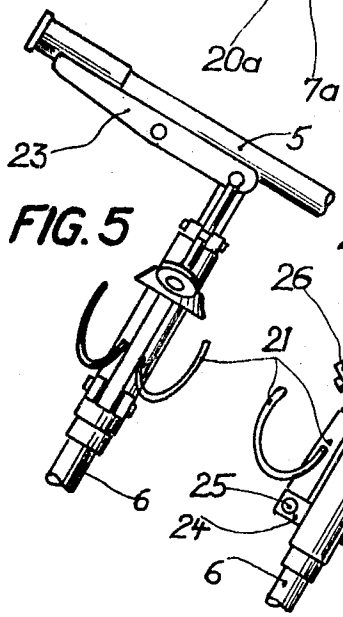
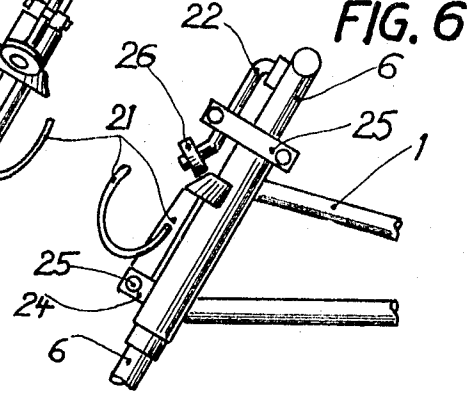


FIG. 6



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WINTER-SPORT DEVICE

This invention relates to a new, improved winter sport device, generally known as Skibob. It is characterized by outrigger mounted foot skis and an automatically or hand operated quick release towing device, with both new features adding greatly to the ease of handling and the safety of riders and spectators.

Contrary to skiing, where the skier stands on the skis, in skibobbing the rider sits on a seat which is part of the main frame and he steers the unit with a handlebar, connected via a steering column to the front ski. For balancing, stopping or assisting in steering, the rider has clamped to his boots two additional short skis, normally referred to as foot skis. They are costly, dangerous, tiresome and require high skill. Having metal claws on the rear end for braking, they tend to tear up the slopes and are a possible source of severe injuries in case of accidents.

For a winter sport device of this kind, which is known to develop high speeds, it is of utmost importance that it be designed to provide absolute safety to the rider, be quick in response to his corrective actions, be easily maneuverable with the least strain on the rider, it must have a low center of gravity, great stability combined with flexibility to conform to the terrain and for convenience it should be light and compact. For effectively and safely towing such a skibob under variing conditions it must be equipped with a towing device which functions properly when the pulling media, for example a rope, stretches approximately parallel to the ground as in towing behind snowmobiles or other suitable vehicles, or when the pull attacks at an angle of up to about 45° to the ground as when hooked to "J" or "T" bars or other towing means on ski slopes. It is furthermore very important that the towing device on the skibob is so designed that the steering operation is in no way hindered when the pull acts upon the skibob under angles different to the momentary direction of movement. In case of sudden danger, as in a fall or crash, it should automatically release the connection with the towing means; also the rider must be able to sever this connection at will.

An object of this invention is to overcome the limitations and the unfavourable and unsafe conditions of presently available skibob type winter sport devices.

The features and advantages of my invention will be readily evident upon a study of the following description and drawings.

FIG. 1 is a side elevation of the improved skiing vehicle according to this invention.

FIG. 2 is a top view related to FIG. 1 with some elements omitted for easier understanding.

FIG. 3 is a sectional front view showing the outrigger skis in relation to the main frame and main skis.

FIG. 4 is a detailed top view showing the outrigger skis in an angular, outward plowing position.

FIG. 5 is a detailed front view showing the towing attachment in relation to the handlebar and front steering column.

FIG. 6 is a side elevation of FIG. 5.

FIGS. 1 to 6 illustrate an improved version of a winter sport device, commonly referred to as Skibob, according to this invention.

The vehicle comprises a main frame (1), a rear or main ski (2), a front steering ski (3), a drivers seat (4), a steering handlebar (5) with steering column (6), and two outrigger foot skis (*7a* and *7b*) linked to the main frame via outrigger arms (*8a* and *8b*). The front steering ski (3) has a bearing bracket (9) and is connected to the pring loaded steering column (6) with a pin (10). This allows the front ski (3) to swivel freely in a vertical plane to the steering column (6). The bearing bracket (9) of said front ski (3) is positioned on this ski at such a point that when this ski looses its contact with the ground(which might be the case in jumping), it will point its front end upwards so that in landing the rear end of the front ski will first make contact with the ground. The degree by which the front ski is permitted to swivel is determined by the bearing bracket (9).

The rear, or main ski (2) is connected with its bearing bracket (11) and pin (12) to the telescoping column (13) in the main frame (1) of the vehicle and is also spring loaded for holding good ground contact and for comfort of the rider. It is obvious that both, front and rear ski springs could be omitted for cost or other reasons. The rear ski (2) can also swivel vertically in its bearing bracket (11) in relation to the main frame. The degree of swivel vertically is controlled by guide lever (14). This lever (14) engages in a guide (15) which is part of the tip of the rear ski (2). Lever (14) has one end fastened to the lower spar (16) of the main frame (1) of which bearing bracket (17) is a part. The connection of guide lever (14) on bracket (17) is such that lever (14) can only swivel inline with main frame (1). This connection of the guide lever (14) and guide (15) of the rear ski holds this rear ski in line with the main frame of the vehicle whereas it allows the rear ski to swivel vertically within limits to adjust to the terrain.

The two outrigger skis (*7a* and *7b*) are fastened on their front tips to the free ends of the outrigger arms (*8a* and *8b*). This connection (*20a* and *20b*) is of such a nature that the rider can manipulate with his feet each of the foot skis (*7a* and *7b*) independently up and down as well as into a plowing position or any combination of each other and in relation to the main frame of the skibob, thus giving the rider great freedom to maneuver the vehicle in a safe and sportlike manner and adapt his ride to the conditions of the terrain.

For pulling the skibob, described in this invention, with its rider uphill on a slope by a "T" or "J" bar or other mechanical skislope devices, or riding the vehicle while being towed behind a snowmobile or other towing means, a quick release hook type coupling is provided as covered by this invention. The hook type tow coupling is comprised of hooklever (21), retaining rod (22) and actuating lever (23). Hooklever (21) is mounted in bracket (24) and pin (25) to the stationary front member of the main frame. Lever (21) may be of a fork type when the towing means end in a crossbar, or it may be a single hook when the towing means end in a loop or ring. Its upper end is formed into a half ring section, tapered, straddling the stationary front member of the main frame. Hooklever (21) can swing away from the main frame in bracket (24) into a forward position. Actuating lever (23) is fastened to the handlebar (5). It engages the retaining rod (22) which is guided in collar (25), fastened to the steering column. Retaining rod (22) has a roller (26) or a glide shoe on its lower free end. Actuating lever (23) can swing around its swivel point on the handlebar and thus moves retaining rod (22) along the steering column (6).

In operation, retaining rod (22) is held in a downward position as long as actuating lever (23) is held by the rider against the handlebar (5). Roller (26) respectively glideshoe of retaining rod (22) will rest against the tapered ring section of hooklever (21) and will hold said lever in a towing position. Roller (26) will retain its locking position against hooklever (21), not affecting the free steering of the front ski. Releasing actuating lever (23) at will or involuntarily as in a fall of the rider, the retaining rod (22) will disengage due to the tapered section of the hooklever (21) which in turn will swing into a forward position, thus breaking the towing connection automatically.

Although the invention has been described in detail, it will be understood that the description thereof is intended to be illustrive rather than restrictive, as many structural details are susceptible to modification and change without departing from the spirit and scope of the invention.

I claim as new and desire to secure by letters patent of the U.S.A.:

1. A sport vehicle comprising steering and support ski elements, a frame normally mounting said ski elements in longitudinally aligned coplanar relation parallel to the longitudinal axis of said frame, a handlebar mounting said steering element on said frame for pivotal movement about a substan-

tially upright axis to afford steering of said vehicle, a seat on said frame overlying said support element to support the driver, outrigger foot skis disposed outwardly and forwardly of said seat for receiving the feet of the driver, and flexible connection means mounting said foot skis on said frame for individual movement by the driver's foot from normal positions parallel to each other and to said longitudinal axis, to plowing positions out of said parallel relationship and at an angle pointing forwardly and inwardly toward the longitudinal axis of said frame, said flexible connecting means including an outrigger arm pivoted to said frame about an axis parallel to said longitudinal frame axis and a second pivotal connection pivoting said foot ski to said arm about an axis spaced from said parallel axis inclined rearwardly relative to the longitudinal axis of said frame, whereby said flexible connecting means positions the outer longitudinal edge of said foot ski upwardly relative to its inner longitudinal edge in said plowing position.

2. A sport vehicle according to claim 1 including a pivot

having a transverse horizontal axis mounting said support ski on said frame adjacent the longitudinal midpoint of said ski, and a flexible link connected between said ski and said frame to limit the vertical pivotal movement of said ski.

3. A vehicle according to claim 2 wherein said flexible link comprises an arm and a spring affording limited vertical displacement and preventing lateral displacement.

4. A sport vehicle according to claim 1 including a hand lever on said handlebar and a towing device maintained operative by said hand lever, whereby upon release of said lever said towing device is rendered inoperative.

5. A vehicle according to claim 4 wherein said towing device comprises a hook lever pivoted on said frame, a displaceable retaining rod restraining pivotal movement of said hook lever, and means connecting said hand lever to said retaining rod to effect release of said hook lever upon release of said hand lever.

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