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 [31] **20,234**

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[54] **SKI BOBS**  
**8 Claims, 4 Drawing Figs.**

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[51] Int. Cl..... **B62b 13/04,**  
**B62b 13/16**

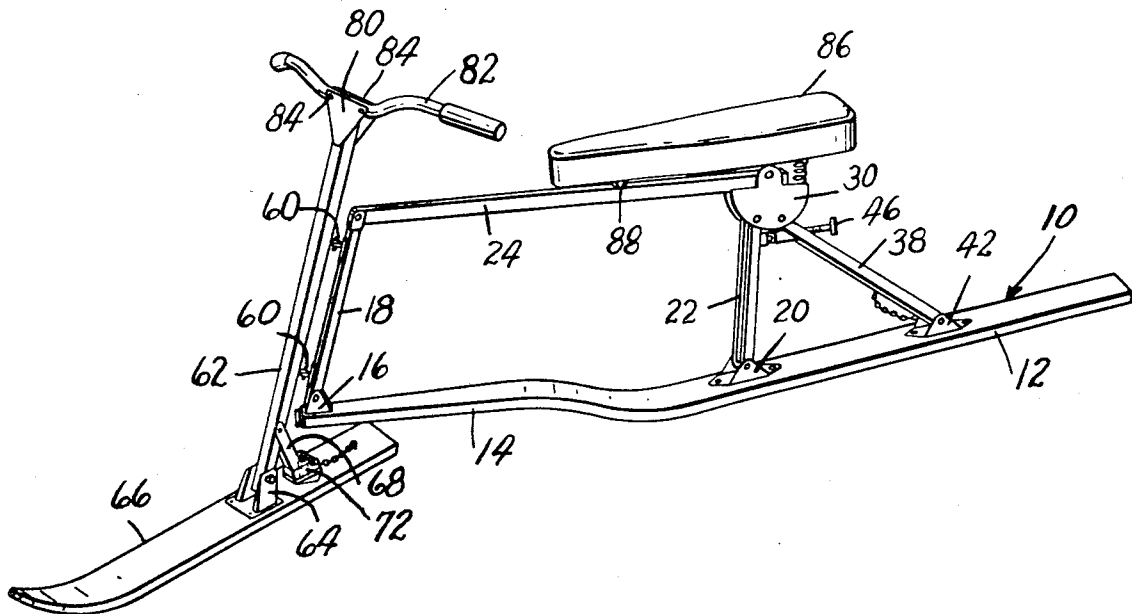
[50] Field of Search..... 280/16, 20,  
 21, 25, 26, 278, 287

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**ABSTRACT:** A ski bob comprises a rear frame portion including a parallelogram linkage formed by a top link a front and a rear link and part of a rear skid, or in a variant a bottom link secured to the rear skid. The frame can be held in its erected position by a detachable strut extending between the rear of the top link and the rear skid behind the rear link. The top link carries a seat and the front link is pivotally connected to a steering column carrying a folding handlebar at its upper end and a pivotally attached front skid at its lower end. The ski bob can thus be collapsed so that all of its parts lie close together and generally parallel in a compact bundle.



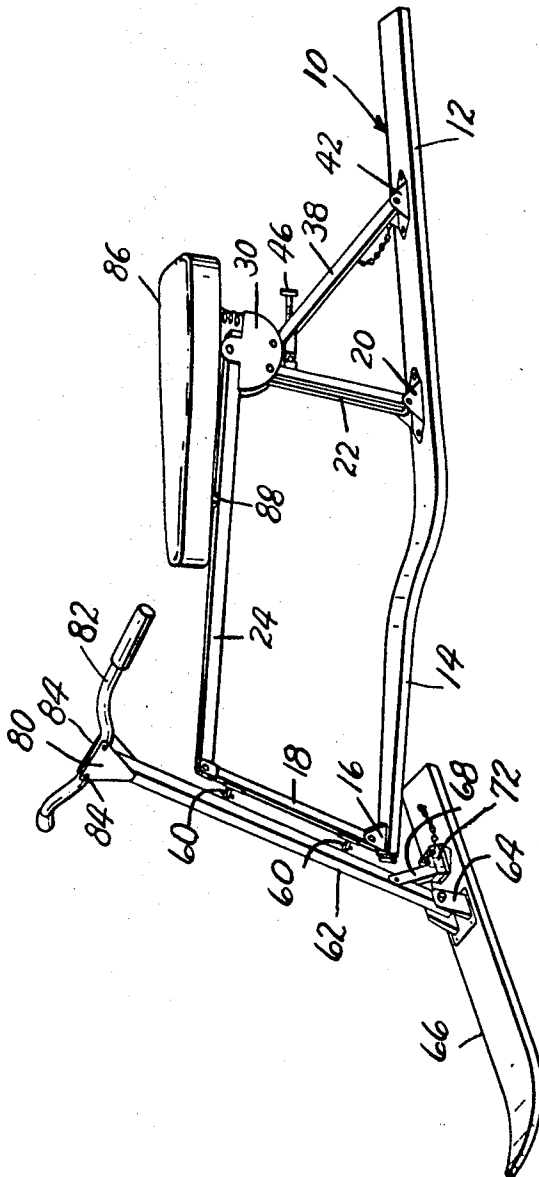


FIG. 1

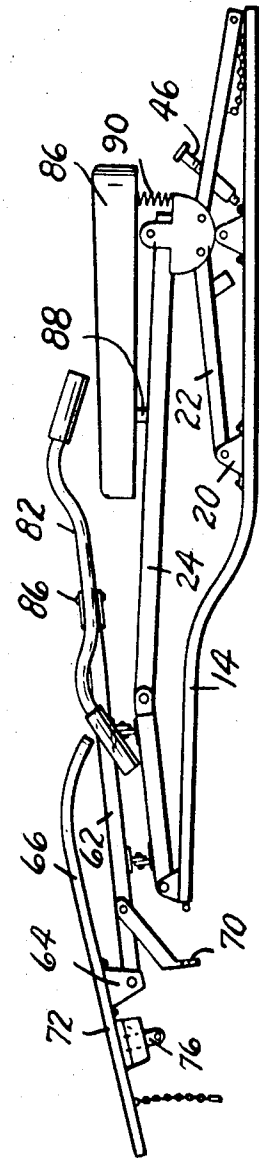


FIG. 2

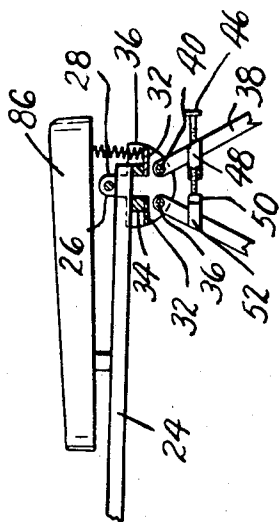


FIG. 3

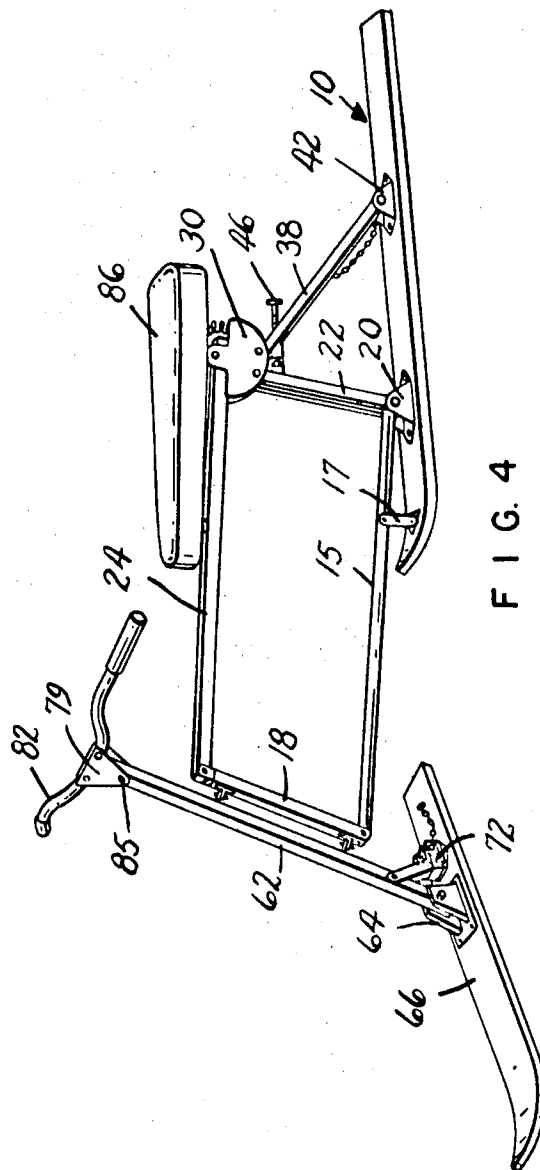


FIG. 4

## SKI BOBS

This invention relates to ski bobs i.e. snow vehicles generally similar to bicycles but having skilike skids in place of wheels.

Such ski bobs generally comprise a rear frame portion in the form of a rigid closed loop extending substantially in a vertical plane and providing at its bottom a single longitudinally extending rear skid, the top of the loop having fitted thereto a bicycle-type saddle. A front frame portion comprises a vertically extending column mounted for rotation about a generally vertical axis at the front of the loop, the upper end of the column being provided with handlebars for steering the ski bob while the lower end of the column is pivotally attached to a front skid so as to turn the latter with the column to steer the ski bob.

While ski bobs have the advantage of being much safer than skis, present ski bobs are bulky and thus cumbersome to transport and take up much greater storage space than skis.

It is an object of the present invention to provide a ski bob which can be folded compactly for storage and transportation.

According to the present invention I provide a ski bob comprising a rear frame portion including a plurality of links pivotally interconnected to allow the rear frame portion to be folded between an erected position in which the links define an open loop and a folded position in which the links lie closely against one another, releasable bracing means being provided for holding the rear frame portion rigid in its erected position, the rear frame portion including a rear skid and a front frame portion including a front skid being provided pivotally attached to one of said links of the rear frame portion to allow relative pivotal movement of the front and rear frame portions, the arrangement being such that with the rear frame portion in its erected position both skids can engage the ground with the skids aligned, the front frame portion being pivotable with respect to the rear frame portion to pivot the front skid about a substantially vertical axis to steer the ski bob, and that with the rear frame portion in its folded position the said links, the front and rear skids and the front frame member can lie closely together in substantially parallel relationship to form a compact bundle.

A ski bob according to the invention can thus be made to occupy little more space than a pair of skis.

Two embodiments of the invention will now be described by way of example with reference to the accompanying drawings wherein:

FIG. 1 is a perspective view of one form of ski bob according to the invention in an erected position;

FIG. 2 is a perspective view of the ski bob of FIG. 1 but in a collapsed position;

FIG. 3 is a view partly in section of a detail of the ski bob of FIG. 1, and

FIG. 4 is a view of an alternative form of ski bob according to the invention.

Referring to FIGS. 1 to 3 a ski bob comprises a rear frame portion including a rear skid 10 in the form of a longitudinally extending horizontal strip constructed of laminated wood or the like and comprising a flat rear part 12 extending for about two-thirds of the length of the strip and a front part 14 extending upwardly at a slight angle to the rear part. The forward end of the forward part, i.e. the end remote from the rear part has fixed thereto a metal bracket 16 in which is pivotally mounted one end of a front link 18 of the rear frame portion said front link being of square-section metal tubing. A similar bracket 20 is fixed to the upper face of the rear skid at the junction of the front and rear parts thereof and the lower end of a rear link 22 comprising two transversely spaced parallel lengths of square-section metal is pivotally mounted in the bracket 20.

The other end of the front link 18 is pivotally connected to the forward end of a relatively long bar 24 of square-section metal tubing. Adjacent its rear end the bar 24 has an upwardly extending lug (see FIG. 3) 26 which is pivotally mounted on a pivot pin 28 supported in opposed cheeks of a bracket 30. The

opposed cheeks of the bracket 30 lie on opposite sides of the bar 24 and, as shown in FIG. 3 the cheeks are connected by platforms 32 on the underside of the bar 24 and in front of and behind the pivot pin 28. A rubber block 34 is bonded to the upper side of each platform 32 and to the under side of the bar 24 on each side of the pivot pin 28. Thus slight relative pivotal movement of the bar 24 with respect to the bracket 30, the blocks 34 thereby being placed alternately under compression and under tension. The bar 24 and bracket 30 together constitute a top link, and this top link is pivotally attached adjacent its rear end to the upper end of the rear link 22 which upper end passes between the cheeks of the bracket 30 and is attached thereto by a pivot pin 36. The arrangement of the pivots is such that the links and the rear skid together form a substantially parallelogram linkage which can open and fold in the vertical plane of symmetry of the rear skid perpendicular to its upper and lower faces.

Adjacent and behind the position on the bracket 30 at which the rear link 22 is pivoted, one end of a bracing strut 38 comprising two transversely spaced parallel lengths of square-section metal tube passes between the cheeks of the bracket 30 and is pivoted to the bracket 30 on a pivot pin 40. At its other end the bracing strut is adapted to fit a further bracket 42 on the upper face of the rear part of the rear skid 10, spaced at some distance behind the bracket 20 the other end of the bracing strut being securable to said bracket 42 by means which may simply comprise a fixing pin passing through the bracket 42 and the strut 38 and normally held in place by a safety catch.

However in the preferred embodiments of the invention the bracket 42 is formed to define a pocket for a complementary formation at the lower end of the strut 38 and a bracing screw 46 is provided in screw-threaded engagement with a block 48 fixed between the two lengths of tubing forming the strut 38. At its inner end the screw 46 carries an abutment member 50 which is adapted to engage an abutment 52 carried between the two lengths of tubing forming the rear link 22.

When the ski bob is erected the strut 38 is fitted into the bracket 42 so that said complementary formation is engaged in said pocket and the screw 46 is screwed up to urge the abutment member 50 against the abutment 52 and thus urge the rear link 22 and strut 38 apart to maintain said complementary formation on the strut 38 in engagement with the pocket in the bracket 42.

In the erected position of the ski bob the bar 24 of the top link is generally horizontal and parallel with the rear skid and the front and rear links 18 and 22 are generally parallel and extend generally vertically between the top rail and the rear skid. It will be seen that with the bracing strut 38 secured to the bracket 42 a rigid triangle is formed by the bracing link, the rear link and the intermediate part of the rear skid which triangle holds the entire rear frame portion substantially rigid.

Bearings 60 fixed at vertically spaced positions on the front of the front link 18 support a column 62 parallel with the front link 18 for pivotal movement about an axis parallel to the column and the front link. The lower end of the column 62 is pivotally attached to a bracket 64 on the upper face of a front skid 66 which allows the skid to pivot about an axis perpendicular to the pivotal axis of the column and the longitudinal axis of the front skid.

A stay 68 extends from the rear of the column 62 adjacent its lower end and is formed at its outer end with a flange 70 having a slot. A rubber block 72 is fixed to the skid 66 behind the bracket 64 and an eye 76 extends from the upper surface of the block. When the ski bob is erected the flange 70 passes over the eye 76 with the eye projecting through the slot in the flange, and the flange engages the upper face of the rubber block. A detachable fixing pin is passed through the eye to hold the stay 68 in place on the block 72. The block 72 acts as a shock absorber for the front skid.

At the upper end of the column 62 a bracket 80 is formed by two triangular plates one welded to the front of the column and the other to the rear and a handlebar 82 is fitted between

the triangular plates and is held in place by two pins 84 passed through the handlebar and the plates. One of the pins 84 is removable to allow the handlebar to be pivoted about the other pin 84 to lie generally parallel with the column 62.

A seat 86 upholstered with cushioning material is provided on top of the top link and is pivoted adjacent its front end to a lug 88 extending from the upper side of the bar 24. At its rear end the seat 86 is supported by compression springs 90 extending between the seat and the rear platform 32. Both skids are made of laminated wood of the like, low friction synthetic plastics material being bonded to the skids on their upper and lower faces and the skids are edged with steel to provide further protection.

The ski bob is erected by expanding the parallelogram linkage provided by the top, front and rear links and the rear skid and securing the bracing strut 38 in said further bracket and subsequently tightening the screw 46. The front skid is fixed to the stay 68 and the handlebars are erected.

The user sits on the seat and steers by pivoting the column by means of the handlebar to pivot the front skid with respect to the rear skid. The provision of the pivot 28 permits slight flexing of the frame in response to shock loads, the blocks 34 being placed alternately in compression and in tension and acting as shock absorbers.

To collapse the ski bob for storage or transportation the screw 46 is released allowing the strut 38 to be disengaged from the bracket 42 and the parallelogram linkage is collapsed backwards. The pin is removed from the eye 76 and the front ski folded up against the column 62 while the removable pin 84 is removed and the handlebar 82 pivoted about the other pin 84 to a position parallel with the column 62. The collapsed ski bob thus has the form shown in FIG. 2, and occupies a space of about the same shape and size as a pair of skis, enabling the user to make use of the same transport and storage facilities as skiers.

The ski bob shown in FIG. 4 is similar to that of FIGS. 1 to 3 and similar parts are similarly referenced. However in the embodiment of FIG. 4 the front and rear skids are made of steel and the lower link of the parallelogram linkage is formed not by the skid 10 but by separate length of tubing 15 pivotally attached at its forward end to the lower end of the front link 18 and at its rear end to the common pivot between the rear link 22 and the bracket 20 fixed to the rear skid. The rear skid extends forwards beyond the bracket 20 and has an upturned forward end which is attached to the bar 15 by a link 17.

The attachment of the handlebar 82 also differs in that the handlebar is permanently secured to a head 79 comprising a pair of plates arranged on the front and back of the column 62 and pivoted thereto by a pivot pin 85 passing through the plates and the column. A fixing screw (not shown) can be passed through an aperture in the rear of the head 79 and a registering aperture in the column 62 to hold the handlebar in its erected position and by removal of the fixing screw the handlebar and head 79 can be pivoted together, about the pivot pin 85 into a position in which the handle bar 82 lies alongside the column 62.

I claim:

1. A ski bob comprising:

a rear frame portion comprising

a plurality of links including a front link, a rear link generally parallel with said front link, and a top link,

pivot means connecting the upper ends of said front and rear links with the front and rear ends, respectively, of said top link,

a rear skid,

pivot means connecting a lower end of said rear link with a part of said rear skid intermediate the ends thereof, and means connecting the lower end of said front link with

the pivot means at the lower end of said rear link whereby said rear frame portion can be folded between an erected position in which said plurality of links define an open loop and a folded position in which the links lie closely against each other,

releasable bracing means for holding the rear frame portion in its erected position comprising

a bracing strut, pivot means connecting one end of said bracing strut with the rear end of said top link, releasably interengageable connection means connecting the other end of said bracing strut and said rear skid at a position thereon intermediate the rear end of the skid and the pivot means for connecting said rear link to the skid, and a front frame portion including

a front skid,

mounting means connecting said front skid to said rear frame portion for pivotal movement about a substantially vertical axis when the ski bob is in an erected position,

pivot means between said front skid and said mounting means whereby with the rear frame portion in its folded position said links, said front and rear skids, and the front frame can lie closely together in substantially parallel relationship to form a compact bundle.

2. The ski bob of claim 1 wherein said interengageable connection means comprises

a bracket on said rear skid providing a pocket

a formation on the end of said strut complementary with said pocket,

a bracing screw in screw threaded engagement with one of said rear link and strut members,

an abutment means on said screw and abutment means on the other of said members, whereby the ski bob is in its erected position the bracing screw can be screwed up to urge said abutments together and urge the rear link and bracing strut apart and the bracing strut thus urged into and maintained in engagement with said pocket.

3. The ski bob as recited in claim 1 wherein the means connecting the lower end of said front link with the pivot means at the lower end of said rear link is part of said rear skid.

4. The ski bob of claim 1 wherein said mounting means comprises:

a column in front of and parallel with said front link,

pivot means spaced-apart along said column and connecting the column with said first link for pivotal movement about an axis parallel with said first link, and manual steering means at the upper end of said column.

5. The ski bob of claim 4 wherein said manual steering means comprises a handlebar,

pivot means connecting said handlebar with said column, and releasable means for securing said handlebar at right angles to said column, against pivotal movement on said pivot means.

6. The ski bob of claim 4 including a stay on said column adjacent the lower end thereof,

a resilient member on said front skid,

and means for releasably securing said stay to said resilient member.

7. A ski bob comprising:

a rear frame portion comprising

a plurality of links, pivotal connections between said links whereby said rear frame portion can be folded between an erected position in which said links define an open loop and folded between an erected position in which said links define an open loop and folded position in which the links lie closely against each other,

one of said links being a top link in the form of a bar having a front and rear end, pivot means connecting the front end of the bar with a front link, a bracket and pivot means adjacent the rear end of the bar and the bracket, at least one elastomeric block fixed to the bar and the bracket and arranged to be stressed on relative pivotal displacement between the bar and the bracket,

a seat and means between said bracket and the seat at least partly supporting said seat,

releasable bracing means for holding the rear frame portion in its erected position,

a rear skid,

and a front frame portion including

a front skid,

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mounting means connecting said front skid to said rear frame portion for pivotal movement about a substantially vertical axis when the ski bob is in an erected position, pivot means between said front skid and said mounting means whereby with the rear frame portion in its folded position said links, said front and rear skids, and the front

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frame can lie closely together in substantially parallel relationship to form a compact bundle.

8. The ski bob of claim 7 including pivot means adjacent the front of the seat connecting the seat to said bar, and compression springs between said seat and said bracket.

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