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FIG. 5

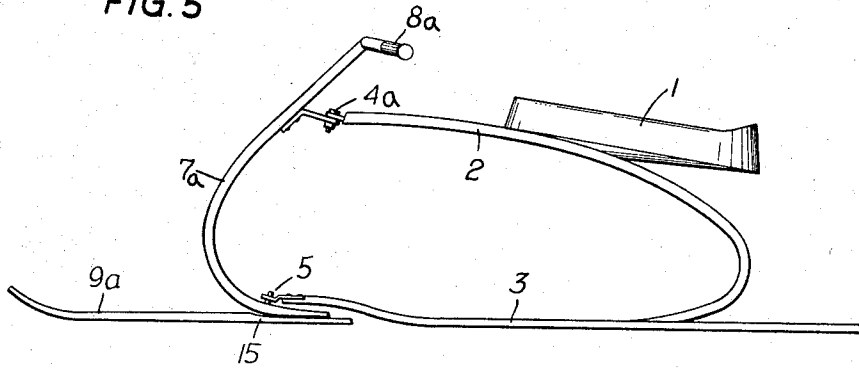


FIG. 6

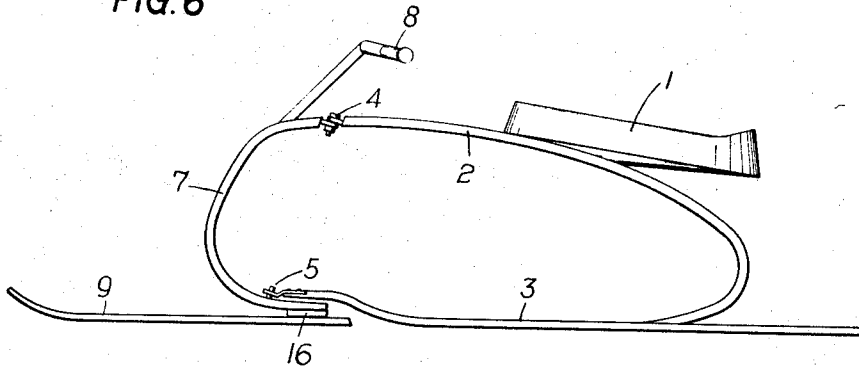
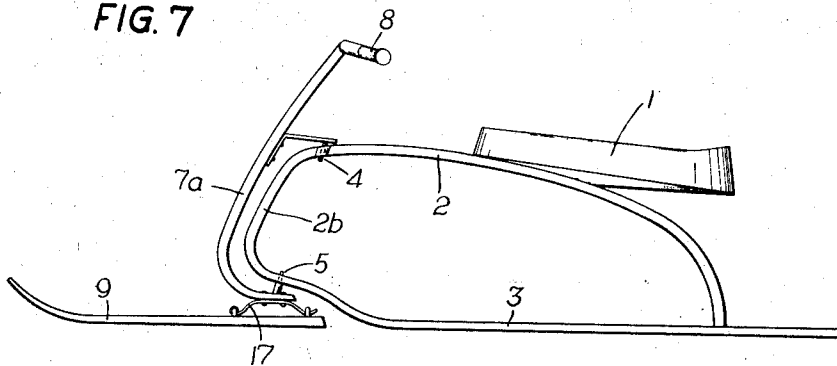


FIG. 7



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SNOW RUNNER

My present invention relates to a snow-running vehicle of the type sometimes referred to as a "ski bob," i.e. a vehicle with a dirigible front ski or runner and a rear ski or runner supporting a driver's seat; a steering post connected with the front ski has handles or other driver-operable means for turning the front ski to the right or to the left, thereby causing the vehicle to execute a corresponding yawing motion.

The general object of my present invention is to provide a simple and compact construction for resiliently connecting the front ski to the rest of the structure and also imparting a measure of elasticity to the seat support.

A more particular object is to provide means in such vehicle for urging the front ski into a normal aligned position with the rear ski.

A snow-running vehicle according to this invention comprises a seat-supporting frame which is rigid with the rear ski and is hinged connected with the steering post, the latter being thereby swingable about a generally vertical axis which may be slightly rearwardly inclined; a resilient linkage connects the steering post with the front ski so that the latter is elastically movable in a vertical plane which includes the swing axis, thereby being able to adjust itself to the surface irregularities of the terrain ahead.

Advantageously, the frame of the vehicle is generally loop-shaped so as to form an elastic structure of light weight; this loop may be forwardly open and complemented to a substantially closed loop by a curved extension of the steering post engaging the front ski.

According to another feature of my invention, the steering post may be journaled in a bearing rigid with the frame and may further be pivotally connected with the front ski to define a horizontal swing axis for the latter, the resilient linkage then including one or more springs anchored to the front ski and to the bearing. If the steering post is also axially slidable in the bearing, the resiliency of this spring mounting is further transmitted to the frame itself to help cushion the seat. Moreover, the bearing may be positively connected with the frame in a manner allowing the mounting spring or springs to exert upon this bearing a biasing force which tends to maintain the two runners aligned with each other.

The invention will be described in greater detail hereinafter with reference to the accompanying drawing in which:

FIG. 1 is a side elevational view of a vehicle embodying the invention;

FIG. 2 is a view similar to FIG. 1, showing a modification;

FIG. 3 is a fragmentary side elevational view, showing a further modification; of the front part of the vehicle; and

FIGS. 4-7 are additional views similar to FIGS. 1 and 2, illustrating still other embodiments.

The vehicle shown in FIG. 1 comprises a seat 1 on a curved frame 2 of elastic material (e.g. steel) rigidly joined to a rear ski or runner 3 with which it forms a generally U-shaped structure having the configuration of a forwardly open vertical loop. Complementing the loop 2, 3 is a resilient yoke member 7 integral with a steering post 7' carrying a pair of handlebars 8. The rearwardly curved bottom end of yoke 7 is rigid with a front ski 9, the entire front assembly 7-9 being connected by hinges 4, 5 with the rear assembly 1-3 for relative swinging about an axis 6 which lies in the vertical plane of symmetry of the vehicle and is slightly rearwardly inclined with reference to the vertical.

The front ski 9 is seen to be freely swingable, in the vertical plane including the axis 6, by virtue of the resiliency of the spur of yoke 7 to which it is attached. The elastic yieldability of members 2 and 7 also provides a resilient suspension for seat 1 which therefore is free to move up and down above the rear ski 3. Steering post 7' includes an acute angle with hinge axis 6.

The vehicle of FIG. 2 is generally similar to that of FIG. 1, except that the seat-supporting frame is now a closed loop having a generally horizontal section 2a, a downwardly curved front section 2a' merging into the rear ski 3a, and a

downwardly curved rear section 2a'' fixedly joined to this ski. As in the preceding embodiment, the vertically movable seat 1 is mounted on the frame at an intermediate point of the loop. The steering post 7a with its handle bars 8a is designed as a unitary yoke member hinged to 2a, frame structure 2a', 2a'', 3a by a lug 4a and a pin 5a. Again the front ski 9a is joined to a lower spur of steering post 7a, i.e. to a curved link portion generally tangent to the substantially straight handlebar-carrying upper portion.

In FIG. 3 I have shown a forward extension 13 of a seat-supporting frame which may otherwise be similar to the frame of FIG. 1, portion 13 carrying a bracket 4b and having an extremity 5b defining a nearly vertical swing axis for the front ski 9b. A straight-steering post 7b, extending along this axis, is held in the lug 4b and in a bearing 12 rigid with extremity 5b in which it is also longitudinally slidable; the lower end of post 7b is pivoted at an upstanding bracket 18 to front ski 9b which is braced against the bearing 12 by a pair of coil springs 10', 10'' exerting upward pressure upon an arm 19 integral with bearing 12. Springs 10' and 10'' not only resist a swinging of front ski 9b about its fulcrum 18 but also tend to maintain this ski generally parallel to arm 19 and, therefore, aligned with the rear ski not shown in FIG. 3.

As illustrated in FIG. 4, the forward portion 14 of the seat-supporting frame has lugs 4c, 5c engaging the steering post 7c which again is rotatable as well as axially slidable therein, the bearing formed by lug 5c resting on top of curved leaf spring 11 whose lower end lies flat against front runner 9c between the arms of a U-shaped bracket 19 which defines the pivotal connection between this runner and the steering post 7c. If the blade 11c is rigidly connected with lug 5c, this blade will also exert an aligning action upon the front ski 9c with reference to the rear ski 3c.

The vehicle shown in FIG. 5 combines the frame 2, 3 of FIG. 1 with the steering means 7a, 8a and the lug 4a of FIG. 2, member 7a being joined at 15 to the front runner 9a at a location just below the lower hinge 5. In FIG. 6, a structure otherwise similar to that of FIG. 1 has been modified by the interposition of a spacer 16 between 9 and link member 7, thereby increasing the relative mobility of the front and rear assemblies. In FIG. 7 which represents a modification of the vehicle of FIG. 2, a bracket 17 has been interposed for the same purpose between steering post extension 7a and front runner 9.

I claim:

1. A snow-running vehicle comprising a rear ski, a seat above said rear ski; an elastic frame rigid with said rear ski and defining therewith an elongated loop deformable in a vertical plane; a seat supported on said frame at an intermediate point of said loop; a front ski forwardly of said rear ski, the latter having a raised forward end overlying said front ski; first hinge means on said forward end; second hinge means coaxial with said first hinge means on a portion of said frame overhanging said forward end, said first and second hinge means being relatively displaceable in said plane owing to the deformability of said loop; an elastic link forwardly of said loop rigid with said front ski, said link having a pair of vertically spaced extensions articulated to said loop by way of said first and second hinge means, respectively, the elasticity of said link and said frame enabling said front ski to swing in a vertical plane which includes the axis of said first and second hinge means, said elasticity further enabling said seat to move up and down above said rear ski; and a steering post rigid with said link rising above said frame.

2. A vehicle as defined in claim 1 wherein said loop is forwardly open, said link complementing said open loop to a substantially closed loop.

3. A vehicle as defined in claim 1, further comprising spacer means inserted between said link and the lower one of said extensions for elevating said forward end above said front ski.

4. A vehicle as defined in claim 1 wherein said link is forwardly curved in the last-mentioned vertical plane.

5. A vehicle as defined in claim 4 wherein said steering post is substantially tangent to the curvature of said link.

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6. A vehicle as defined in claim 1 wherein said steering post diverges downwardly and forwardly from said axis at an acute angle.

7. A vehicle as defined in claim 6, further comprising a pair of handlebars secured to said steering post.

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UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3,545,785 Dated 8 December 1970

Inventor(s) Erich BRENTER

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Claim 1, lines 1 and 2 (col.2, lines 46 and 47)
delete "a seat above said rear ski" .

SIGNED AND
SEALED
MAR 16 1971

(SEAL)

Attest:

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