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(71) Demandeur/Applicant:

LE ROI DES SENTIERS INC./THE KING OF THE
TRAILS, CA

(72) Inventeur/Inventor:

LEBREUX, JEAN-PIERRE, CA

(54) Titre : LISSE D'USURE REVERSIBLE DOUBLE POUR SKIS DE DIRECTION DE MOTONEIGE

(54) Title: DOUBLE REVERSIBLE WEAR BAR FOR SNOWMOBILE STEERING SKI



(57) Abrégé/Abstract:

Double reversible wear bar consisting of a longitudinally extending member on the bottom center of a snowmobile steering ski. Said member being made of steel. Holes are pierced through said member for securing it to the steering ski. The invention permits longer service life of the steering ski wear bar because of its reversibility and better control of the snowmobile in the trails and on hardened snow.



Description Summary**Double reversible wear bar for snowmobile steering ski**

Double reversible wear bar consisting of a longitudinally extending member on the bottom center of a snowmobile steering ski. Said member being made of steel. Holes are pierced through said member for securing it to the steering ski. The invention permits longer service life of the steering ski wear bar because of its reversibility and better control of the snowmobile in the trails and on hardened snow.

Background of the invention

Technical field: This invention relates to snowmobile skis, and more particularly to steering skis wear bars for snowmobiles and similar vehicles.

Background: Steering a snowmobile is typically accomplished by a pair of steering skis pivotally attached to the front of the snowmobile. The steering skis glide over the surface of the snow and may be angularly turned from side to side in response to movement of handlebars by the user. The snowmobile generally, if the conditions are good, follows in the direction the skis are pointing.

Under most snow conditions, especially in snowmobile trails, steering skis, when turned, have a tendency to follow the tracks left by the passage of other snowmobiles rather than tracking in the direction intended by the user. This situation is particularly hazardous and frustrating for the trail riders as they lose all control of the snowmobile which follows the trail tracks, thus rendering near impossible emergency turns or avoiding oncoming snowmobiles.

Various methods have been employed to lend increased predictability and control over snowmobile steering skis. One of the most common methods is the inclusion of a, or multiple, longitudinal keels along the underside or running surface of the ski. The keels bite into the surface of the snow and purports to enhance the steering characteristics.

U.S. Design Patent Des. 366,014 to Lindquist et al. Dated January 9, 1996 illustrates a conventional snowmobile ski having a straight central keel. The top surface of the ski has a continuous head along each edge and a plurality of very small, (thin in width and short in depth) straight, longitudinal ribs along the running (bottom) surface of the ski.

A keel for a snowmobile steering ski is disclosed in U.S. Patent No. 3,632,126 to Shorrock. The keel disclosed in Shorrock has a straight running edge, and is adjustable to compensate for wear. U.S. Patent No. 3,711,109 to Hofbauer discloses a snowmobile steering ski having a very short, curved keel resiliently attached to the ski runner. U.S.

Patent No. 3,643,978 to Westberg discloses a short curved flange which may be attached to the edge of a snowmobile ski, and which is intended to function similar to a keel.

U.S. Patents 5,040,818 and 5,145,201 to Metheny illustrate snowmobile skis having a central keel with a planar lower surface as a part of a ski which has a laterally arched lower running surface.

Although the above inventions represent alternatives to a snowmobile ski without a keel, they are subject to several problems. The weight of both the snowmobile and the user is distributed evenly over the flat running surface of the skis in Shorrocks. This places a portion of the weight at the ends of the straight keel and makes the skis difficult to turn and lessens its usefulness. The bite of the keel into the surface of the snow is also distributed over a large area instead of concentrated in the most efficient location directly beneath the steering spindles. The short keel in Hofbauer tends to provide a concentration of weight beneath the steering spindles, but the amount of bite is reduced in soft snow due to its short length. Also, because it is hinged, it tends to retract on hard snow pack or ice, when a keel is very important. The short flange in Westberg also tends to concentrate weight beneath the steering spindles, but since it mounts on the edge of a ski, it actually exacerbates the problem of the ski "catching" in the snow during a turn, causing a loss of control even at moderate speeds. (The phenomenon is similar to the effect of a downhill skier catching a downhill edge during a turn). Also, such short keels do not provide steering stability during straight runs and show a reduced steering ability in soft snow.

The inventions disclosed in Shorrocks, Hofbauer and Westberg bring to light what has heretofore been a dilemma with respect to the design of snowmobile steering skis. Increased positive steering brought about by a long keel comes at the expense of ease of steering. Accordingly, a short keel makes the skis easier to steer, but reduces the amount of positive control. There is a need for a device that provides improved controllability and positive turning without a concomitant increase in steering difficulty.

Finally, application for U.S. patent No. 08/902,250 and in Canada under No. CA2244520 discloses an improved snowmobile steering ski attachable to the steering spindles of a snowmobile. In this invention, the keel gradually increases in protrusion to a maximum

protrusion at a point on the ski runner near to the steering spindle and then gradually decreases in protrusion to merge back into the bottom surface.

There also is a need for a replacement for existent wear bars like the ones disclosed in Canadian Patent No. 2217279 as they are expensive and wear rapidly. The invention disclosed is a direct replacement of these devices at a much lower cost and much longer service life.

Disclosure of invention

The double reversible wear bar of the present application is made up of an "H" form (frontal view) body of steel approximately 3/16" inches in thickness, 17 inches in length, 3 ½ inches wide and 1½ inches high and is affixed at the bottom center of any steering ski immediately under the steering spindle. The wear bar tapers beginning 3 inches from the front end and is rounded at the back on either side. The wear bar is fastened to the ski by means of bolts and nuts secured through the holes provided for existing wear bars on conventional snowmobile skis.

Several significant advantages result from the design of the improved wear bar. Positive steering is improved because the wear bar provides maximum bite into the snow, hardened snow or ice in the most efficient position substantially directly beneath the steering spindle.

The ski is easy to turn, even in deep tracks or ruts in the trail. Durability, lower cost and extended service life comparing to existing wear bars are also added benefits. Reversibility of the device is also a characteristic.

Figure A. In the accompanying drawing represents a side view of the invention.

Figure B. Representing a frontal view.

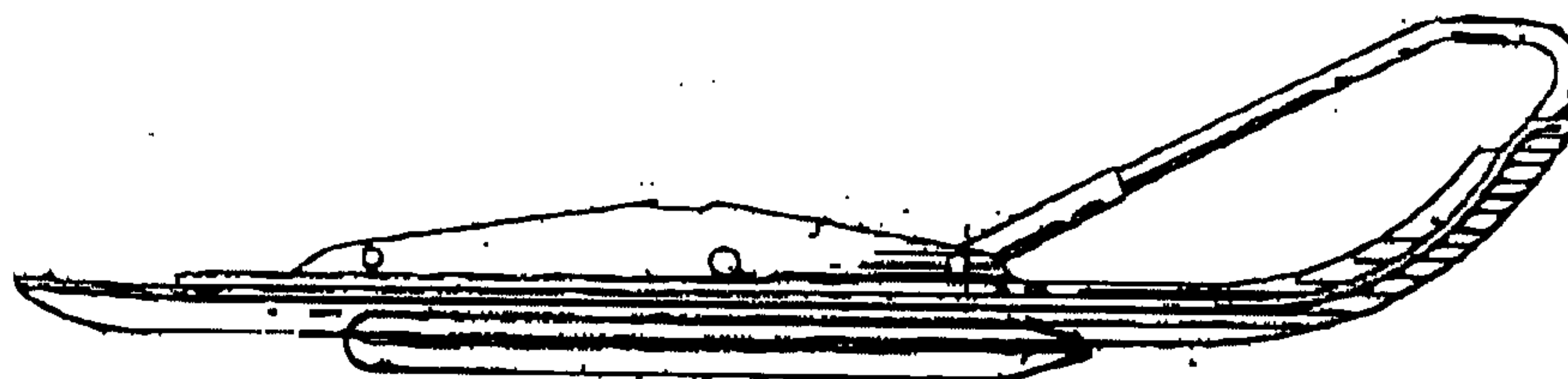


Fig. A

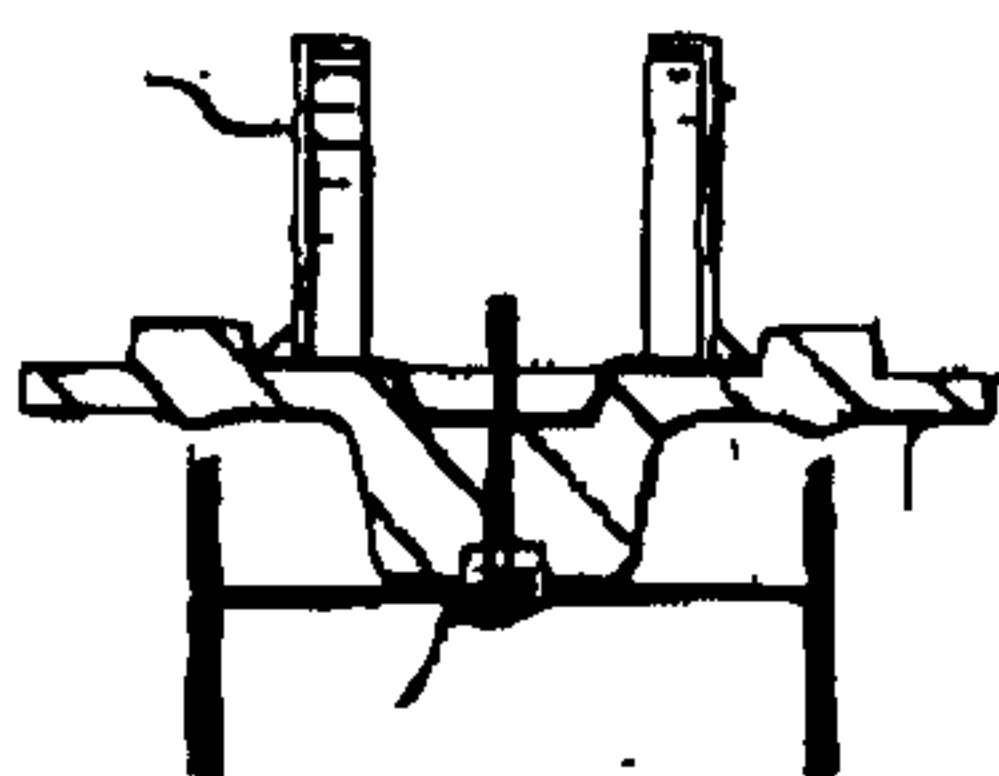


Fig. B

