

[54] SKI CONSTRUCTION

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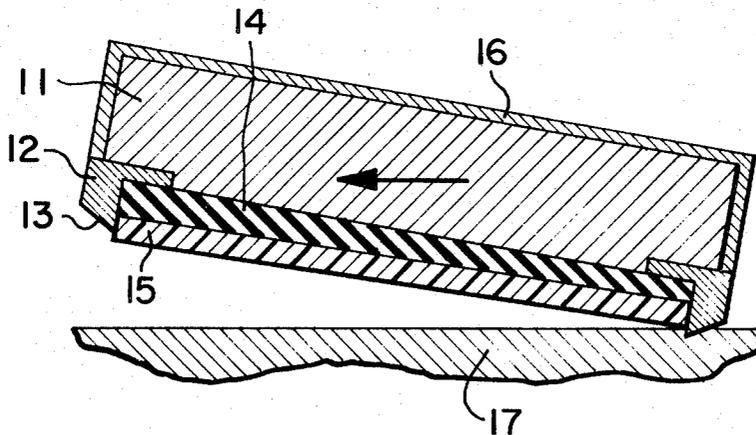
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[57] ABSTRACT

An improved snow ski comprising a rigid core, downwardly extending running edges affixed to the core, a block of resilient material disposed between the running edges and affixed to the core, and a planar bottom member, slidably disposed between the running edges and affixed to the resilient block of material. During turning, the weight of the skier and centrifugal forces acting upon the ski compress the resilient block of material so that the bottom of the ski slides inwardly past the running edge of the ski disposed on the inside of the turn and the running edge protrudes past the bottom of the ski and engages the snow or ice on which the ski is moving.

8 Claims, 5 Drawing Figures



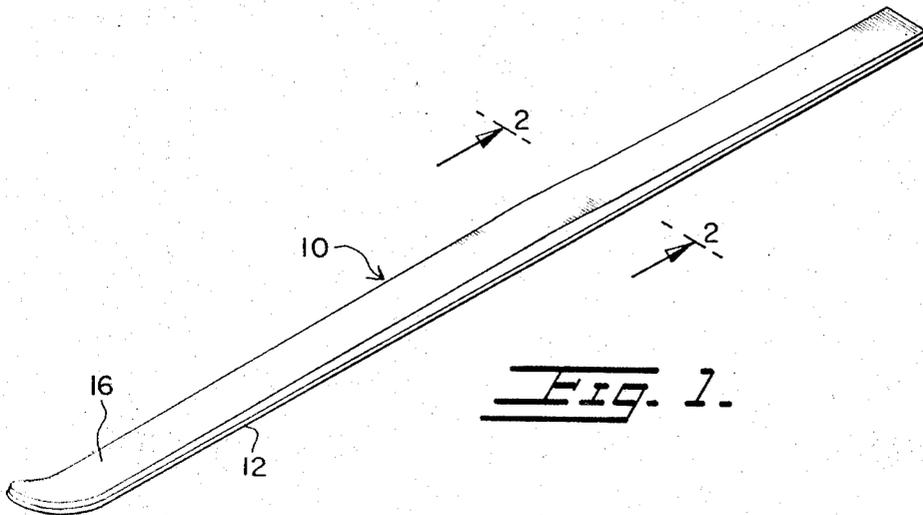


Fig. 1.

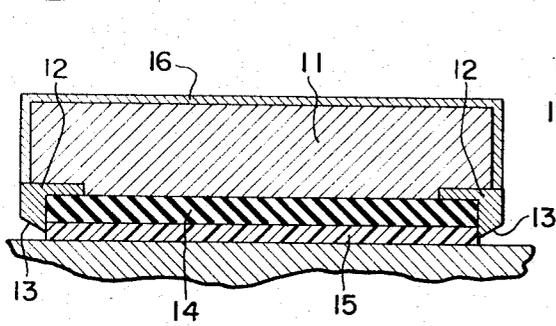


Fig. 2.

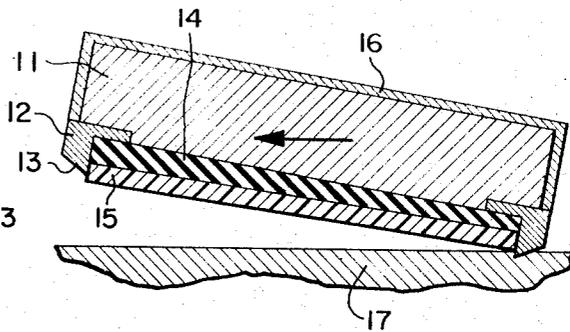


Fig. 3.

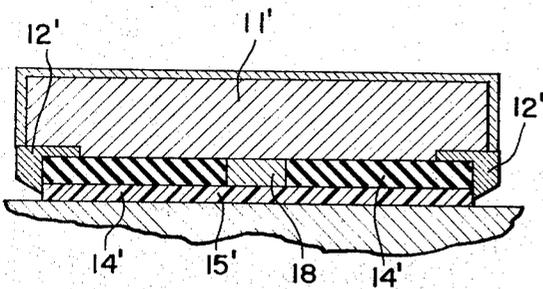


Fig. 4.

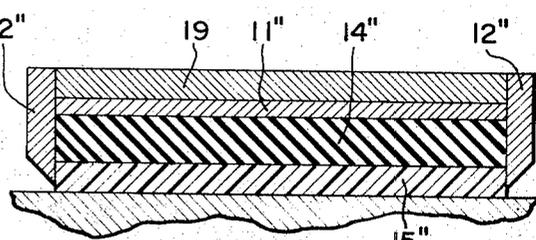


Fig. 5.

## SKI CONSTRUCTION

The present invention relates generally to skiing equipment, and in particular to an improved snow ski construction.

The metal running edges of conventional snow skis generally do not track well in snow, and have a tendency to side-slip during turns, especially on hard snow and ice. As a result, the skis often loose their grip on the snow, and slip from under the skier's feet, causing a fall. Such falls often result in injury to the skier, especially when they occur on steep slopes.

Accordingly, the present invention provides an improved ski construction which overcomes the aforementioned disadvantage of conventional skis. The improved ski of the present invention comprises a rigid core, downwardly extending metal running edges attached to the core between the metal running edges, and a rigid bottom member attached to the resilient block of material and slidably disposed between the metal running edges. The downwardly extending running edges have lower surfaces which are disposed upwardly and outwardly at an angle away from the bottom of the ski. The skier's weight on the ski, and the centrifugal force acting on the ski during a turn, compress the resilient block of material so that the bottom of the ski, adjacent to one of the running edges, moves slidably inwardly past the lower surface of the running edge, so that the running edge protrudes from the bottom of the ski and digs into the snow or ice.

It is, therefore, an object of the present invention to provide an improved snow ski which does not side-slip during turns on hard snow or ice.

It is also an object of the present invention to provide an improved snow ski which has better tracking characteristics than conventional snow skis.

It is also an object of the present invention to provide a method for constructing an improved snow ski which does not side-slip during turns, and has better tracking characteristics.

It is still a further object of the present invention to provide an improved snow ski which is simple in design, easy to manufacture, and efficient and reliable in operation.

Other objects and features of the present invention will become apparent when taken in conjunction with the accompanying drawings, which disclose several illustrative embodiments of the invention. It is to be understood that the drawings are designed for the purposes of illustration only, and are not intended as a definition of the limits and scope of the invention disclosed.

In the drawings, wherein similar reference numerals denote similar elements throughout the several views:

FIG. 1 is a perspective view of an improved ski constructed in accordance with the present invention;

FIG. 2 is a cross-sectional view of the ski, taken along section 2—2 of FIG. 1, showing the ski at rest;

FIG. 3 is also a cross-sectional view of the ski, taken along section 2—2 of FIG. 1, showing the ski during a turn;

FIG. 4 is a cross-sectional view of another embodiment of an improved ski constructed in accordance with the present invention; and

FIG. 5 is a cross-sectional view of still a further embodiment of an improved ski constructed in accordance with the present invention.

Referring now to the drawings, specifically FIGS. 1—3, there is shown an improved ski 10 comprising a rigid core 11, consisting of, for example, plastic, wood or cardboard, to which metal running edges 12 are affixed. The running edges may comprise, for example, brass, plastic or steel and are L-shaped. One leg of each of the metal running edges extends downwardly, preferably, but not necessarily, to the lower surface of core 11, and has an inclined lower edge 13 which is directed upwardly and outwardly away from the center of the ski. A block of resilient material 14 is attached to core 11 and is disposed between the downwardly extending legs of metal running edges 12. The resilient block of material may be, for example, rubber, and is also attached to bottom 15 of ski 10. The bottom is constructed of fiberglass, plastic, or similar material, and is slidably disposed between the downwardly extending legs of metal running edges 12. The top and sides of the ski are formed by a wood, plastic or metal casing 16 attached to metal running edges 12.

As shown in FIG. 3, during a turn, the weight of the skier and centrifugal force exerted on the ski compress resilient block of material 14 and force the side of bottom 15, which is disposed on the inside of the turn to slide inwardly past the inclined edge of the running edge. The running edge thus protrudes past the bottom of the ski and engages the snow or hard ice 17 on which the ski is moving. Better tracking and less side slipping of the skis, especially on hard ice and snow, is thus achieved.

The ski disclosed is generally assembled by conventional methods of construction. Bottom 15, and resilient block of material 14 are bonded to each other by conventional adhesives. The thickness of block of material 14 is determined by the resiliency of the material used, and the weight of the skier who is to use the ski. These forces can be computed from average height-weight distributions. The block of material has a thickness sufficient to insure that bottom 15 projects past the inclined edges of the metal running edges of the ski when no weight is placed thereon. When a skier is standing on the ski, the block of resilient material compresses so that the amount of the bottom of the ski projecting past the metal running edges is very slight or not at all. Thus, when the skier "edges" the ski during turning in snow, the centrifugal forces acting on the ski cause the resilient block of material to compress further, and retract one side of the bottom of the ski in between the metal running edges past the inclined edge on the inside of the turn. Although not necessary for the operation of the invention, inclined edges 13 of metal running edges 12 provide a sharp edge for digging into snow and ice, and, due to their upwardly and outwardly directed slope, enable the ski to "unedge" more easily after a turn is completed. Lubricating material may be disposed between running edges 12 and bottom 15, and block of material 14, to both aid in the movement thereof with respect to the running edges, and seal the gaps therebetween.

FIG. 4 illustrates another embodiment of the invention. A rigid support member 18 is disposed between running edges 12' and is attached to bottom 15' and core 11'. A pair of resilient blocks of material 14' are disposed between the support member and the metal running edges. The remaining construction, and the operation of this embodiment of the ski, are substan-

tially the same as the embodiment of the invention discussed above.

FIG. 5 illustrates still another embodiment of an improved ski constructed in accordance with the present invention. Metal running edges 12'' are planar in shape, and are secured to a planar top member 19 or core of the ski by conventional fastening means, such as countersunk screws. Top member 19 may be constructed of, for example, brass, or any other suitable material. Core 11'' is affixed to resilient block of material 14'' and bottom 15'', as in the embodiment of the invention described with respect to FIGS. 2 and 3. The operation and the materials used for the construction, of this embodiment of the ski are substantially the same as the operation of and the materials used to construct the previously described embodiments.

In all of the previously described embodiments of the invention, it may be preferable, in order to improve the maneuverability of the skis, and to ensure the proper operation of the metal running edges, to vary the thickness of the resilient block of material along the entire length of the ski, as illustrated in FIG. 1. This may be necessary due to the concentration of the weight of the skier at the center of the ski, and the lesser forces acting against the ski at its ends. This variation in resiliency may also be accomplished by using resilient blocks of materials having different resiliency characteristics but the same thickness, so that those directly underneath the feet of the skier have greater strength and resistance to compression and less resiliency, while those at the outer ends of the skis have less strength and more resiliency.

While only several embodiments of the present invention have been shown and described, it will be obvious to those persons of ordinary skill in the art that many changes and modifications may be made thereunto without departing from the spirit and scope of the invention.

What is claimed is:

- 1. A snow ski, comprising:
  - a rigid core;
  - a pair of downwardly extending running edges, affixed to said core;
  - a block of resilient material, disposed between said running edges, and affixed to said core; and

a planar bottom member, slidably disposed between said running edges and affixed to said resilient block of material,

whereby the weight of the skier and centrifugal forces acting upon the ski during turning cause said resilient block of material to compress and said bottom planar member to slide inwardly past at least one of said running edges so that said one edge protrudes past said bottom member and engages the snow on which the ski is moving.

2. The ski as recited in claim 1, wherein said running edges each have an inclined lower edge extending upwardly and outwardly away from the center of the ski for engaging the snow on which the ski is moving.

3. The ski as recited in claim 2, wherein said running edges are L-shaped, and have one leg thereof affixed to said core and disposed substantially parallel to said bottom member of the ski, and the other leg thereof disposed perpendicular to said bottom member of the ski.

4. The ski as recited in claim 1, wherein said block of resilient material decreases in thickness along the length of the ski from the center to each end thereof.

5. The ski as recited in claim 1, further comprising a rigid support member, disposed between said running edges and affixed to said core, for engaging said bottom member of the ski, and wherein said block of resilient material comprises a pair of blocks of resilient material disposed adjacent said support member between said running edges.

6. The ski as recited in claim 5, wherein said running edges are provided with lower inclined surfaces extending upwardly and outwardly away from said bottom member of said ski for engaging the snow on which the ski is moving.

7. The ski as recited in claim 6, wherein said running edges are L-shaped.

8. The ski as recited in claim 1, wherein said running edges are planar in shape, and further comprise lower inclined edges extending upwardly and outwardly away from said bottom member of the ski, said planar running edges forming the sides of the ski, and wherein the ski further comprises a planar top member, disposed between said running edges, and rigidly affixed thereto, forming the top of the ski.

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