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R. S. HECKMAN

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SKI MAT

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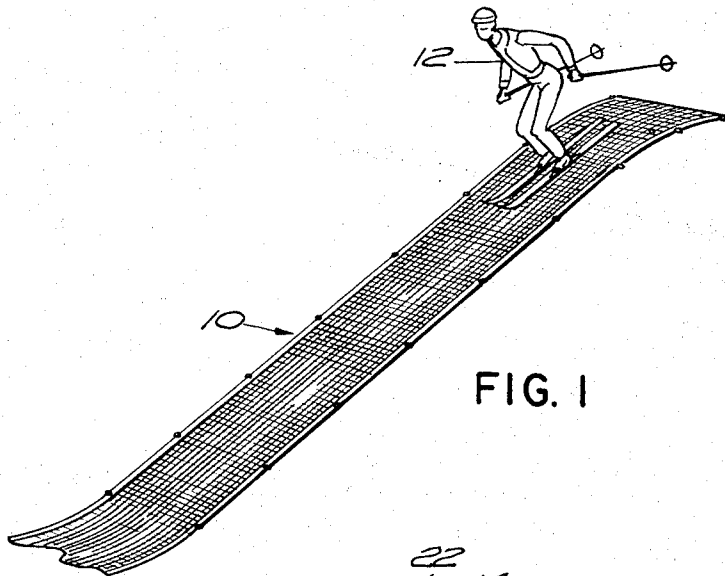


FIG. 1

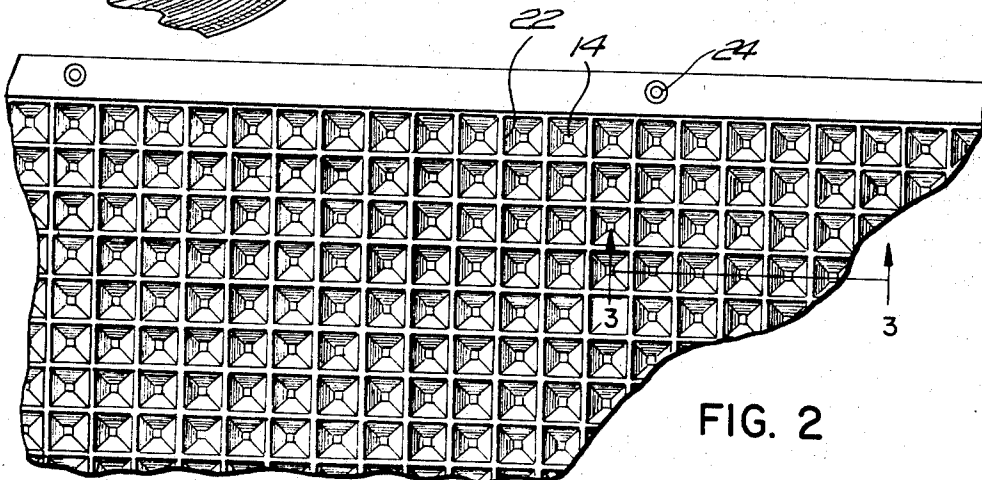


FIG. 2

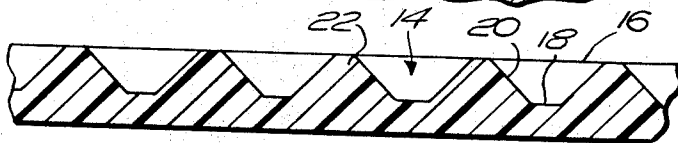


FIG. 3

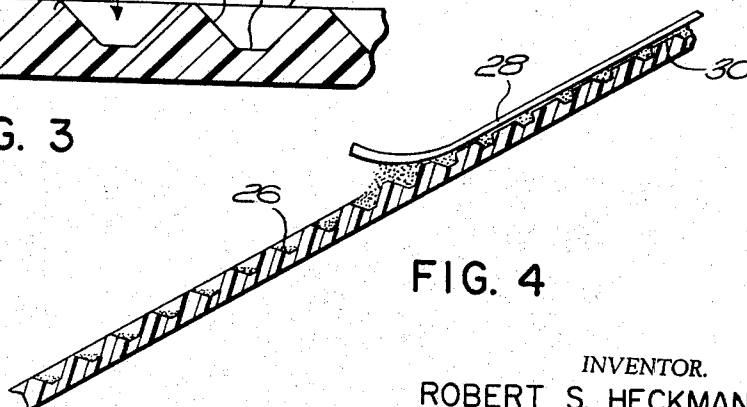


FIG. 4

INVENTOR.
ROBERT S. HECKMAN
BY
Morse, Altman & Oates
ATTORNEYS

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SKI MAT

Robert S. Heckman, 5345 Tinker St., Otis Air Force Base,
Cataumet, Mass. 02534
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ABSTRACT OF THE DISCLOSURE

An elongated flexible mat of imperforate material is formed over its upper surface with an array of pockets containing a liquid lubricant to provide a low-cost, portable, artificial ski track. The mat is laid out over an inclined surface such as a hill and water is applied. The pockets retain the water and, as the skier passes over the pocketed surface, the mat yields sufficiently to release the lubricant which together with the lands provide skiing action closely akin to that obtained from natural snow.

This invention relates generally to artificial ski runs and more particularly is directed towards a new and improved ski mat characterized by a sliding surface similar to that of natural snow.

In order to widen the enjoyment of skiing, a number of artificial ski runs have been developed for indoor instruction or for outdoor use when little or no snow is on the ground. The most common snow substitute now in use is artificial snow produced by compressed air and water. While the output of the snow making machines is closely akin to true snow, the equipment involved is quite expensive and its use is limited to below freezing temperatures. Other artificial ski runs have employed a granular plastic material as a snow substitute, waxed slides, or other low friction media. While the foregoing artificial ski runs provide sliding surfaces, they are not particularly satisfactory for various reasons. For example, artificial ski runs available heretofore are usually permanent installations and are quite expensive. Furthermore, their skiing surfaces do not closely simulate the sliding and control characteristic of true snow or are difficult to fabricate because of complex structural design.

Accordingly, it is an object of the present invention to provide improvements in artificial skiing runs.

Another object of this invention is to provide a new and improved ski mat of simple, low-cost construction.

Still another object of this invention is to provide a flexible, portable ski mat which when suitably lubricated displays sliding control characteristics comparable to those of natural snow.

More particularly this invention features an artificial ski run comprising an elongated flexible mat, of rubber or the like, formed over its upper working surface with a plurality of shallow pockets which serve to trap a lubricating liquid such as water and hold the same distributed over the mat surface even though the mat may be inclined from the horizontal. Skis sliding over the pocketed surface compress the lands between the pockets forcing the lubricating liquid to be distributed through the interface between the skis and the mat thus providing a very low friction hydrostatic sliding surface responsive to control movements of the skier.

However, these and other features of the invention, along with further objects and advantages thereof, will become more fully apparent from the following detailed description of a preferred embodiment of the invention, with reference being made to the accompanying drawings, in which:

FIG. 1 is a view in perspective of a ski mat made according to the invention and installed on a sloping surface for use by a skier,

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FIG. 2 is a fragmentary top plan view of the ski mat shown in FIG. 1,

FIG. 3 is a fragmentary cross-sectional view of the mat, and,

FIG. 4 is a fragmentary cross-sectional view of the ski mat as it appears in use.

Referring now to the drawings, the reference character 10 generally indicates a flexible, liquid-impervious mat of rubber or the like, of any suitable length or width to provide ample skiing surface for a skier generally indicated at 12. The mat material should be flexible, easily compressible and fully resilient and preferably is selected from a class of material which is readily molded on conventional sheet molding machinery. Rubber, natural or synthetic, is particularly suitable for the mat material and it is desirable that the rubber be relatively soft to permit it lateral compression under the weight of the skier.

The upper or working surface of the mat is formed with an array of relatively small pockets 14 closely adjacent to one another over the mat surface. Each pocket preferably has a square or rectangular top opening 16 with a bottom wall 18 also of a square or rectangular configuration but of reduced size. Each pocket is formed with surrounding sloping side walls 20 which form truncated pyramidal lands 22 between adjacent pockets. These lands form a grid pattern over the mat surface.

In the illustrated embodiment the mat is provided with spaced grommets 24 along the marginal edges of the mat to permit the mat to be secured to a suitable support. For example, when using the mat on a hill, small wooden pegs, stakes or the like may be driven through the grommets into the ground. Suitable other fastening devices may also be employed.

In practice the mat 10 is laid out over the supporting surface whether it be a natural hill, a fabricated chute or other inclined surface and is secured in position to prevent displacement of the mat when in use. When properly laid out, the pocketed surface of the mat is covered with a suitable liquid lubricant. This lubricant may be plain water for example, a solution of soap and water, or any other suitable lubricant. The mat may be readily covered with plain water by the use of a hose played over the mat surface. In any event, each pocket serves to trap a small quantity of liquid lubricant as indicated at 26 despite the inclined position of the mat. As best shown in FIG. 4 each pocket holds its quantity of lubricant undisturbed until a ski 28 passes over the pocket. As shown in the upper portion of FIG. 4, the ski 28 compresses the lands 22 and displaces the liquid lubricant in such a manner that a liquid lubricating film 30 is formed along the interface of the mat and the lower face of the ski. This film serves as a low friction hydrostatic bearing surface for the ski to pass easily over the mat. The action is such that the liquid lubricant is evenly distributed and yet not completely displaced from the individual pockets whereby, as the ski passes on, the lands immediately return to their original condition and the pockets are reformed with only a nominal loss of lubricant. This permits the mat to be used for a number of runs before it is necessary to apply another coating of lubricant.

In addition to serving as a means to trap the liquid lubricant the pockets and the grid pattern of lands serve as an excellent control surface for the skier. In a straight run the skier will move under very low friction down the mat and yet he may slow himself, turn or make any normal ski motion by control movements such as edging, plowing, weight shifting and the like. The grid mat surface cooperates with the skis to permit the skier to carry out normal skiing motions and turns in the same manner as when skiing upon natural snow.

The mat disclosed herewith is readily fabricated on

conventional molding machinery and provides an efficient, inexpensive lightweight portable ski run which is independent of the weather. The mat may be used indoors or outdoors and in the summer as well as in the winter, as desired. The mat may be used by adults or children and may be used in conjunction with other equipment such as toboggans, saucers or the like. In addition to downhill skiing, relatively short sections of the mat may be employed on starting platforms for water skiers. Such a mat may be secured to the top surface of a platform just above water level and will permit the skier to stand upon the platform when starting his run rather than crouching in the water as is currently the practice.

While the invention has been described with particular reference to the illustrated embodiment, it will be understood that numerous modifications thereto will appear to those skilled in the art. For example, various changes may be made to the specific configuration of the pockets and various means may be employed to secure the mat in position. Also a number of lubricants may be selected for use with the mat. Accordingly, the above description and accompanying drawings should be taken as illustrative of the invention and not in a limiting sense.

Having thus described the invention, what I claim and desire to obtain by Letters Patent of the United States is:

1. An artificial ski track, comprising
 - (a) a portable elongated mat,
 - (b) said mat, being formed of a liquid impervious, flexible and resilient material,
 - (c) at least one side of said mat being formed with an array of pockets distributed over substantially the entire face thereof and containing a quantity of fluid lubricant,
 - (d) said mat being also formed with an array of relatively narrow and readily compressible lands separating said pockets,
 - (e) said lands being sufficiently compressible to yield under ski pressure and simultaneously release the lubricant into the interface between said ski and said mat.
2. An artificial ski track according to claim 1 wherein said pockets are of rectangular outline and are formed with inclined side walls which converge towards the bottoms of said pockets.
3. An artificial ski track according to claim 1 including means for securing said mat to an inclined surface.
4. An artificial ski track according to claim 3 wherein said securing means includes fastening members disposed along the margins of said stratum.

5. An artificial ski track, comprising in combination
 - (a) a relatively wide and elongated mat of a liquid impervious, flexible and resilient material,
 - (b) at least one side of said mat being formed with an array of small shallow recesses and relatively narrow readily compressible lands separating the recesses and distributed evenly over substantially the entire face thereof,
 - (c) means for securing said mat to an inclined surface, and
 - (d) a liquid lubricant deposited in said recesses,
 - (e) said lubricant adapted to form a film between said mat including said lands and the underside of skis passing over said recesses simultaneously upon compression of the lands by the skis.
6. An artificial ski track according to claim 5 wherein said recesses are of rectangular outline and are formed with side walls that converge towards the bottoms of said recesses.
7. An artificial ski track according to claim 5 wherein said lubricant is water.
8. A slide system providing low frictional resistance for a body moving thereover, comprising
 - (a) a mat presenting a planar upper surface,
 - (b) said mat being formed of a liquid impervious flexible and resilient material,
 - (c) said surface being formed with a network of relatively narrow readily compressible lands defining an array of closely spaced pockets distributed over substantially the entire face thereof, and,
 - (d) a quantity of fluid lubricant in said pockets adapted to form a bearing fluid film at the interface between said mat and said body as said body depresses the lands between adjacent pockets and simultaneously forces the fluid into the interface.

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JACOB L. NACKENOFF, *Primary Examiner.*