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PORTABLE SKATING RINK

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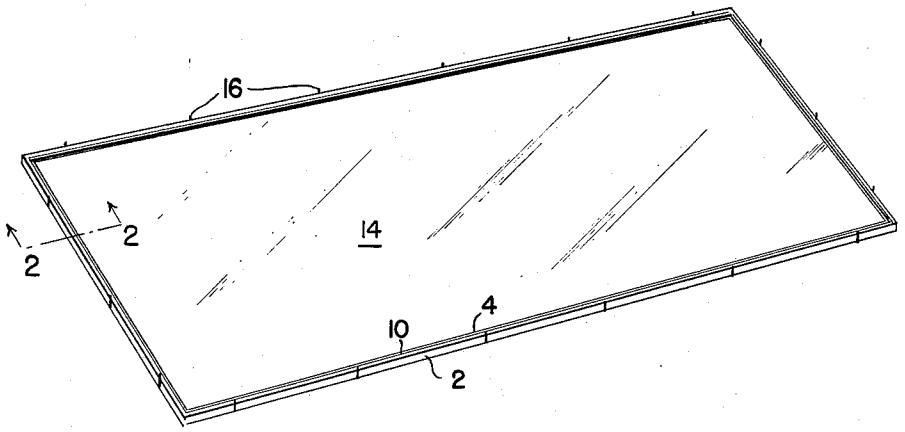


FIG. 1.

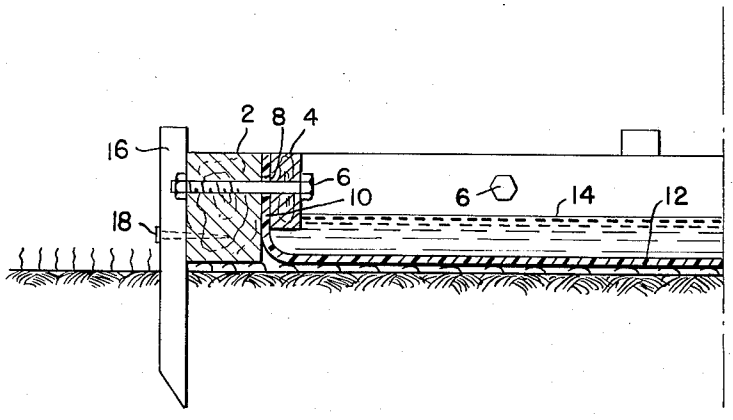


FIG. 2.

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PORTABLE SKATING RINK

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This invention relates to a portable skating rink particularly adapted for use on private lawns or the like.

Ice skating is generally confined to frozen ponds, streams or other naturally occurring bodies of water since most homeowners are unwilling to destroy lawn areas for the formation of ponds for ice skating and do not wish to incur the expense and labor involved in even shallow excavation. It is the general object of the present invention to provide a portable ice skating rink which may be set up during the winter season, being placed upon a reasonably level surface such as a lawn, paved area, or the like. Following the skating season it may be readily dismantled and stored. The skating rink provided in accordance with the invention has the particular advantage in that it may be used without damage to a lawn. Furthermore, it is highly durable and requires for the formation of the ice surface only a small quantity of water ranging, for example, from a depth of about one inch to a maximum of a few inches.

The general object of the invention and other objects relating particularly to details of construction will become apparent from the following description, read in conjunction with the accompanying drawing, in which:

FIGURE 1 is a perspective view showing the improved rink in assembled condition for use; and

FIGURE 2 is a vertical section taken on the plane indicated at 2—2 in FIGURE 1.

A rink provided in accordance with the invention may be made in a wide variety of sizes, ranging from one of small area suitable for the play of small children up to large areas which may be suitable to accommodate large skating parties. A wooden framework is provided by the use of beams 2 which may be bolted together at corners in any suitable fashion and, in the case of large rinks may be secured together, end to end, by suitable overlapping joints. This framework may be rectangular or of other suitable shape as may be better adapted to the area of the rink involved. The framework need have a height of only a few inches, say four to six inches, depending upon the approximation to a level of the surface on which the rink is to be placed. In the event that the surface is slightly sloping, the frame must have such height that at the lowest level the ice will not rise above the top of the frame while there is maintained a suitable ice thickness at the highest point. Interiorly of the beams forming the framework just mentioned there are additional beams 4 which are provided primarily as barriers to prevent cutting by the skates of the plastic sheeting which forms the container for the ice. This plastic sheeting, indicated at 12, has its edges 10 upturned and clamped between the beams 2 and 4 by means of bolts 6 passing through the beams and through preformed openings 8 in the edges 10. The sheeting 12 thus forms a pan, the corners of the edges 10 being folded and overlapped in obvious fashion and held in such condition by the clamping action of the beams and bolts. If desired, the assembly may be held in position by stakes 16 located at suitable intervals which are driven into the ground and nailed as at 18 to the beams 2.

To secure the major advantages of the invention, the sheeting 12 is of a tough, flexible plastic material which may be quite thin, having a thickness in the range of rial as follows:

Desirably the sheeting 12 is a polyethylene sheet which may be quite thin, having a thickness in the range of

0.003 inch to 0.005 inch, the sheet being shown in FIGURE 2 of greatly enlarged thickness for clarity. The polyethylene polymer used is desirably of the type having a molecular weight in excess of ten thousand. A sheet of this type has various highly desirable characteristics. First, it is tough and highly flexible so that when the pan which it provides is filled to the desired depth with water which is to be frozen to form the ice 14 it will conform to local irregularities in the surface on which it is located. Thus, if it is placed on a lawn, it will conform to tufts of grass, stones or other irregularities without being broken or cut. Polymers of the type just mentioned have the property of remaining highly flexible down to temperatures far below those ever encountered under conditions of ice skating. In fact, they remain flexible and tough at temperatures as low as −100° F. Furthermore, they are completely impervious to water so that there is no possibility that water entering pores will freeze and cause cracking of the sheet. Another highly important property is that of transmission of sunlight which appears necessary even in freezing weather to prevent killing of a lawn. Accordingly, it has been found that a rink such as that described may be placed on a lawn during the winer, and after removal following the end of freezing weather the grass which has been covered has been unaffected and will continue to grow during the spring. Mechanical damage to the grass by crushing is also avoided. At the time the rink is placed in position and filled with water, the flexibility of the sheeting produces an evening out of pressure and when freezing occurs the rigid ice spreads whatever pressure exists over extended areas so that there is no undue pressure of crushing type exerted locally.

While other plastic sheeting material may be used it is desirable to use sheeting having properties equivalent to those just mentioned which characterize the polyethylene polymers.

The sheeting 12 need not be continuous since a large sheet may be readily built up by the heat sealing of small sheets together. Such heat sealing provides joints which are as impervious as the sheeting itself and consequently rinks in accordance with the invention may be provided up to any desired area.

Due to the fact that the radiation from sunlight is transmitted to the ground while the sheeting has good insulating properties, it has been found that the ice, once frozen, tends to remain frozen over more extended periods than is normally the case when freezing occurs in a shallow pond. In other words, temporary thawing temperatures will, unless of extended duration, result in less melting of the ice than would occur if the ice were in direct contact with the ground.

As has been indicated above, only a very shallow depth of ice is required, one to two inches sufficing under ordinary circumstances. To insure protection of the plastic against cutting by skates the barrier beams 4 are desirably located either dipping below or closely approaching the ice so that the edges 10 of the sheeting cannot be engaged by them.

It will be evident rinks in various sizes may be sold in disassembled form with instructions to the purchaser relative to assembly which, as indicated, involves only bolting, with, if desired, some incidental staking, though the latter is generally unnecessary except to prevent possible "creeping" of rinks of quite small size. Thus disassembly is obviously readily effected and the sheeting may be rolled up and stored along with the other elements of the rink. During the period of use the ice surface may be maintained merely by spraying additional water into the rink by means of a hose, and finally, when disassembly is to be effected, the water may be siphoned off or permitted to evaporate.

It will be obvious that various changes in details of construction may be made without departing from the invention as defined in the following claims.

What is claimed is:

1. An ice skating rink construction comprising members providing a frame and sheeting arranged to extend through the area defined by the frame with its major portion arranged to rest on a supporting surface and with its edge portions upturned and secured to the frame for the formation of an ice-containing enclosure, said sheeting being thin and highly flexible, whereby it may conform closely to an irregular supporting surface, and of a tough, water-impervious polyethylene plastic and having a thickness of the order of 0.003 to 0.005 inch.

2. An ice skating rink construction according to claim 1 in which a barrier is located adjacent to the edge portions of the sheeting to prevent contact of skates therewith.

References Cited in the file of this patent

UNITED STATES PATENTS

399,968	Burr	Mar. 19, 1889
424,512	Stratton	Apr. 1, 1890
1,918,437	Torrance	July 18, 1933
2,021,074	Maynes	Nov. 12, 1935
2,433,211	Gits	Dec. 23, 1947
2,483,789	Smith et al.	Oct. 4, 1949
2,616,096	Hasselquist	Nov. 4, 1952
2,628,364	Wallace et al.	Feb. 17, 1953
2,767,755	Hill	Oct. 23, 1956

FOREIGN PATENTS

387,090	France	June 30, 1908
389,447	France	Sept. 9, 1908
182,341	Switzerland	Feb. 15, 1936