



(12)

EUROPEAN PATENT APPLICATION

(21) Application number : **91850324.4**

(51) Int. Cl.⁵ : **A63C 19/10, A63C 19/06**

(22) Date of filing : **18.12.91**

(30) Priority : **21.12.90 NO 905548**

(43) Date of publication of application :
01.07.92 Bulletin 92/27

(84) Designated Contracting States :
AT CH DE FR IT LI NL SE

(71) Applicant : **Messel, Jan-Erik**
Kvartsvn. 8
N-1903 Gan (NO)

(71) Applicant : **Messel, Per Arne**
Kvartsvn. 10
N-1903 Gan (NO)

(71) Applicant : **Messel, Tor Arne**
Nordassloyfa 34 B
N-1251 Oslo (NO)

(72) Inventor : **Messel, Jan-Erik**
Kvartsvn. 8
N-1903 Gan (NO)

(74) Representative : **Modin, Jan et al**
c/o Axel Ehner's Patentbyrå AB Box 10316
S-100 55 Stockholm (SE)

(54) **A method of marking of an ice surface.**

(57) A method of marking of an ice surface, for instance a rink adapted for games or competitions, comprising that a fabric or a plurality of fabrics comprising one or more colour areas and/or patterns is/are laid on the ice surface in order to constitute the marking, and that water is sprayed on for freezing and for fastening and covering the fabric or fabrics. The method is an alternative to the traditional method of painting the desired marking on the ice surface. The fabric or fabrics may be perforated, and the fabric material may be for instance plastics, glass fibres or water proof paper.

The present invention relates to marking of an ice surface, for instance a rink adapted for games or competition.

Ice surfaces to be used for games or competition, as for instance rinks for ice hockey, bandy and curling, are usually marked by use of paint having the prescribed colours. The paint is applied on a layer of ice, and water is sprayed on for forming a layer of ice above the paint, in order to protect the paint and to avoid friction against the painted areas. In addition to the marking used in the game or competition as such, additional marking is sometimes applied, as for instance the name of sport clubs, logos, advertisements, city arms or similar. For performing the work of painting use is partly made of templates and partly of tensioned cords. For instance on the sideboards surrounding ice hockey rinks are usually applied marks indicating the positions of the different straight lines transversely of the rink (red line, blue line, goal line and the extension thereof), for the purpose of tensioning cords between these marks near the ice surface, whereupon straight lines are painted along or between the cords.

It is also usual to apply an approximately white primary colour on such rinks. This can be done by application of white paint or by adding white paint to the water to be sprayed on the rink.

The marking of such rinks is a time consuming and intricate work. This fact is of particular significance for rinks which are used for different purposes, as for instance change-over from ice hockey and curling and vice versa. By each such change-over the rink has to be melted down and a new marking and a new layer of ice must be applied.

On rinks not equipped with a freezing plant another problem is that the paint marking may more or less flow or seep in mild weather, so that the marking becomes useless in a succeeding period of frost.

Moreover, expenses will of course be incurred in the purchase of the paint being used, and these expenses will rise as a function of the number of change-overs between different markings.

The present invention brings about a method which does not involve any of the above mentioned problems.

The method according to the invention is defined in the succeeding claims.

The invention has the effect that any kind of painting work on the ice surface can be avoided. The marking can be performed merely by correct application of one or more fabrics on the ice surface, whereupon water is sprayed on the surface in order to fasten the fabric or fabrics, for the achievement of an even ice surface.

The method can, however, be combined with giving the ice surface an approximately white primary colour by means of paint, by applying of paint or by adding of paint to the water to be sprayed, as exp-

lained above in connection with painting of the marking. The alternative to such use of paint in order to achieve a desired primary colour is to use a completely covering fabric having the desired primary colour. For instance for an ice hockey rink, having an area of about 1800 m², a completely covering fabric will be rather expensive, but the use of a completely covering fabric may, nevertheless, be profitable when a change-over between two or more kinds of marking is to take place several times per year. When a completely covering fabric is used in order to impart the desired primary colour to the rink the marking can be carried out by the use of separate fabric portions. Thereby, the completely covering fabric can be used together with all the different markings. The separate fabric portions can be placed on top of the completely covering fabric, in correct positions. The separate fabric portions may be adhered to the completely covering fabric, by means of an adhesive which later makes it possible to pull the separate fabric portions off from the completely covering fabric. Separate fabric portions which comprise such marking that is not to be changed, for instance the name of the club, logos or similar, as mentioned above, may be permanently fastened to the completely covering fabric.

The separate fabrics adapted to constitute the marking may be manufactured in the prescribed colours of the different marks, and the fabrics may be cut to the desired shape. For ice hockey and curling are, in addition to white primary colour, used the colours red and blue.

Two or more fabrics of different colours may also be joined. As an example can be mentioned the red, white and blue rings forming the "house" on a curling rink. Provided that the center of the "house" is placed correctly, the rings will be situated in correct positions, whereupon water is sprayed on the rink.

Straight lines, like "blue line", "red line", goal line and its extension etc. for ice hockey may of course be made of straight fabric strips. These may be laid out by a single person, in that a strip is first laid in a correct position at one of its ends (for instance by use of marks on the sideboard), whereupon water is sprayed on this end. When the water has frozen the strip can be laid or rolled out in its full length, and its other end is fastened by freezing in the same manner as the first end. In a similar manner all other marking on the ice can be temporarily fixed in the correct positions, whereupon the entire rink is sprayed with water in order to build up an upper layer of ice which covers the marking.

The term "fabric" used herein is a term having a broad meaning, as it in the principle covers all sheet materials which can appropriately be used. Plastics is supposed to be the most convenient fabric material. Among types of plastics in question can be mentioned PVS and polyethylene. For instance a PVC fabric having a very small "shape memory" is commercially

available and will, even after having been rolled up and stored, lie evenly and closely against the ice surface. Also a fabric of water resistant paper can be employed, in particular when change-over from one marking to another is not to take place very often.

For use on artificially frozen rinks, where the heat to be removed from the water is to be conducted down into the foundation, a perforated fabric is convenient to employ, in order that the fabric only to a small degree acts as a heat insulating barrier. The perforations can be so small that they do not disturb the appearance of the fabric.

As mentioned, the employed fabric may be manufactured in the prescribed colour. It is, however, also possible to paint the fabric. As an example can be mentioned the areas near the face-off spots on an ice hockey rink. These areas comprise a circle having a small thickness, diametrical marks, short, straight lines inside the circle and a center spot. The marking can be painted on a white fabric. It is possible to paint the marking of both the face-off spots near each goal on the same fabric. When laying out the fabric it is only necessary to place the center spots in correct positions. For this purpose the ice surface, or a completely covering fabric having a primary colour, may in advance be equipped with center marks, and the fabric carrying the marking may have a hole in the center of each center spot.

For use on rinks where a change-over between different markings takes place several times per year it may be convenient to use a completely covering fabric having a primary colour and being permanently equipped with all the marking belonging to one type of game or match, i.e. to use one completely covering fabric for each type of game or match. Thereby, the work of change-over will merely consist of melting down the ice, exchanging the completely covering fabric and spraying of water.

The marking on the completely covering fabric may consist of several fabric portions, which may be glued, welded or sewn to the covering fabric, or the marking may be painted on the covering fabric.

For the purpose of marking relatively long, narrow lines, as for instance the goal lines on an ice hockey rink or all the lines on a bandy rink, fabric strips having the same width as the lines can be used, but the strips may also have substantially larger widths than those of the lines, whereby the lines are painted on the strips, for instance along the middle portions thereof. Such strips, having for instance a width of 20 to 40 cm, are supposed to be more convenient to lay out than narrow strips, and they will also be lying more steadily during the spraying of water.

The invention makes it possible to remove the marking in a simple manner, without melting down the ice. This can be accomplished by planing or milling away the ice above the marking, but without planing or milling through the marking. A thin layer of ice, hav-

ing a thickness of for instance a few mm, may remain above the fabric or fabrics. This layer can simply be pierced in a small area, in order to permit that the fabric can be grasped and pulled up, whereby the entire thin layer bursts.

Claims

1. A method of marking of an ice surface, for instance a rink adapted for games or competitions, **characterized** in that a fabric or a plurality of fabrics comprising one or more colour areas and/or patterns is/are laid on the ice surface in order to constitute the marking, and that water is sprayed on for freezing and for fastening and covering the fabric or fabrics.
2. A method according to claim 1, **characterized** in that the fabric or fabrics is/are fastened along an edge or at an end by spraying of water for freezing, whereupon the fabric or fabrics is/are laid out in the correct position or positions.
3. A method according to claim 1 or 2, **characterized** in that a fabric having a desired primary colour is laid out, and that one or more fabrics which constitutes or constitute the desired marking is/are laid on the first fabric.
4. A method according to any of the claims 1 to 3, **characterized** in that the fabric or fabrics employed is/are perforated.
5. A method according to any of the claims 1 to 4, **characterized** in that the fabric or fabrics employed is/are made of plastics, water proof paper, glass fibres or similar.
6. A method according to any of the claims 1 to 5, **characterized** in that in order to constitute relatively narrow marking lines are used fabric strips having a larger width than the lines, which have been painted on the strips.



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number

EP 91 85 0324

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
X	DE-A-3 331 312 (FREUDENBERG) * page 4 - page 6, paragraph 1 * -----	1, 2, 4, 5	A63C19/10 A63C19/06
			TECHNICAL FIELDS SEARCHED (Int. Cl.5)
			A63C
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 21 FEBRUARY 1992	Examiner STEEGMAN R.
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

EPO FORM 1503 03.92 (P0401)