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(54) **COVER ARRANGEMENT FOR AN ICE RINK AND A METHOD FOR COVERING AN ICE RINK**

(57) The invention relates to a cover arrangement (1) for an ice rink (10). The cover arrangement (1) comprising a flexible cover part (2) having an area (Ac) at least as large as the area (Ai) of the ice (11) of the ice rink (10), wherein the cover arrangement (1) further comprises fixing elements (3) arranged along the periphery of the flexible cover part (2) for detachably fixing the flexible cover part (2) to boards (12) surrounding the ice (11) such that a space is formed between the ice (11) and the flexible cover part (2).

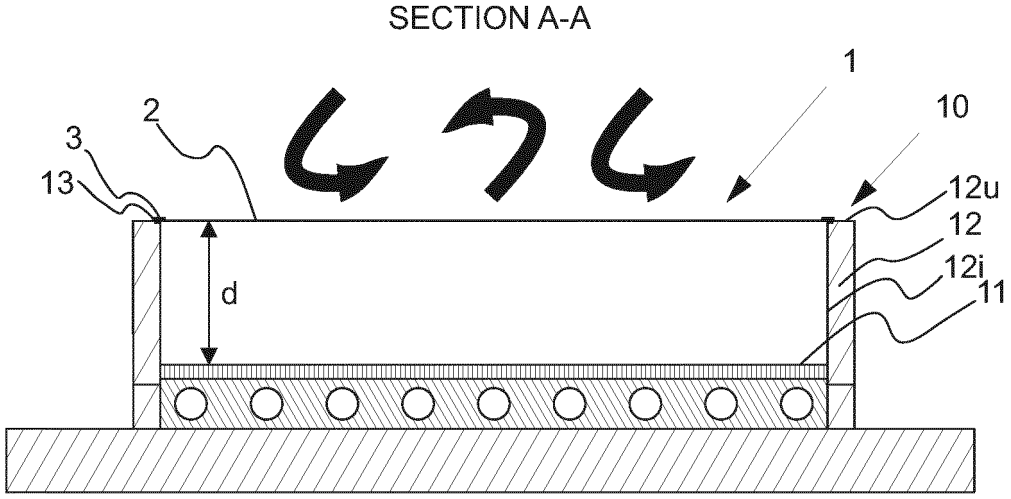

FIG. 7

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Description

BACKGROUND OF THE INVENTION

FIELD OF THE INVENTION

[0001] This invention relates to a cover arrangement, particularly to a cover arrangement used for covering the ice of an ice rink in an ice sports facility, such as an ice hockey rink in an indoor ice hockey stadium for instance. The invention also relates to a method for covering the ice of an ice rink.

[0002] Such a cover may be employed during inactive periods of the ice rink i.e., when the ice rink is not in use and when maintenance is not performed on ice.

BACKGROUND OF THE INVENTION

[0003] The purpose of ice sports facilities is to provide suitable conditions for practicing ice sports. Desirable conditions for ice sports vary according to the activities performed on the ice and preferences of the users, but generally the temperature of the ice is between -5 and -2 degrees Celsius, and the temperature of the air in the ice sports facility in vicinity of the ice rink is generally between 6 and 12 degrees Celsius. Due to this temperature difference, the ice sports facility is an unbalanced thermodynamic system, where due to thermodynamic principles, the system seeks equilibrium resulting in energy flows between the ice and the heated air. The main form of energy flow between the ice and the air is convection, and to a smaller degree conduction, and heat radiation.

[0004] Maintaining this unbalanced thermodynamic state is highly energy consuming, as in practice, the ice must be constantly cooled while the air must be heated at the same time, resulting in high total energy consumption. In fact, majority of the total energy consumption in ice sports facilities (circa 80%) results from said cooling of the ice and heating of the air. High total energy consumption in turn translates to high operation costs as the upkeep of the above-described conditions requires use of external (bought) energy.

[0005] The ice of the ice rink is a significant cool surface area relative to the size of the ice sports facility, the area of the ice generally ranging from 1400 square meters to 1800 square meters in case of ice hockey rinks, for instance. This large cool surface acts as a massive heat sink dissipating and thus wasting both the cooling energy and the heat energy produced inside the ice sports facility. Heat energy is supplied to the ice sports facility mainly in form of heated supply air and the heat energy in turn is dissipated mainly through the ice of the ice rink. Cooling energy is supplied to the ice sports facility mainly through a refrigeration system connected to the ice of the ice rink. The refrigeration system produces necessary cooling energy to keep the ice at the required temperature level by dissipating the heat energy bound to the ice.

[0006] To reduce the total energy consumption of the ice sports facility, it is desirable to insulate the ice acting as a heat sink from the heated air of the ice sports facility during downtime of the ice rink. The use of an ice rink for practicing ice sports and the ice maintenance required by the use covers only part of the day. This downtime outside of ice use is usually more than a third of the day, the downtime mainly consisting of nighttime and other time periods when the ice rink is free from ice sports and maintenance. By insulating the cooled ice from the heated air for such significant time periods, significant cost savings are possible.

[0007] For the solution to be usable in ice sports facilities, it must also take into account the following requirements and restrictions set by the ice sports facility: the structure of the ice rink, shape and functionality of the ice rink, user friendliness of the solution, and the space limitations of the ice sports facility set by the stands arranged around the ice rink.

[0008] Known solutions for reducing the energy consumption of ice sports facilities during downtime of the ice rinks are lacking in many aspects. The known solutions have in common that an insulating cover is laid directly on the ice, and in contact with the ice. Thus, the operating principle and efficiency of insulation of these solutions is based directly on the insulation properties of the covers themselves. In practice, the known solutions that have effective insulation properties are thick, heavy, rigid, and very difficult and laborious to operate. Therefore, frequent daily use of such covers is very difficult to implement or mechanize efficiently. Known solutions do not fulfil all the use requirements set by the operating environment of ice sports facilities, and there are no widely used known solutions for this problem.

[0009] Therefore, there is a clear need for an improved solution for reducing the total energy consumption of ice sports facilities, particularly during downtime of the ice sports facility.

[0010] Respectively, the known methods for covering an ice rink are limited in aspects detailed above, and as implied in elsewhere in the following description.

SUMMARY OF THE INVENTION

[0011] An object of the present invention is to solve the above-mentioned problems and to provide a cover arrangement for an ice rink which is better suited for reducing the energy consumption of ice sports facilities during downtime of the ice sports facilities, and to provide an improved method for covering an ice rink. These and other objects are achieved with a cover arrangement according to independent claim 1 and with a method for covering an ice rink according to independent claim 12.

[0012] Preferred embodiments of the invention are disclosed in the dependent claims.

[0013] The embodiments and features, if any, described in this specification that do not fall under the scope of the independent claims are to be interpreted as

examples useful for understanding various embodiments of the invention.

[0014] Further advantages and details of the invention are disclosed in detail in the description below.

BRIEF DESCRIPTION OF DRAWINGS

[0015] In the following the present invention will be described in closer detail by way of example and with reference to the attached drawings, in which

figure 1 illustrates a sectional view illustrating the operational principle and the object of the cover arrangement as a technical solution.
figure 2 illustrates an enlarged section and cross-sectional view of an embodiment of fixing a cover to a board structure surrounding an ice rink with the required tightness and strength.
figure 3 illustrates a side view of section A-A of the embodiment of figure 4,
figure 4 illustrates a top view of an embodiment of an ice rink,
figure 5 illustrates a side view of section A-A of the embodiment of figure 6,
figure 6 illustrates a top view of an embodiment according to the invention,
figure 7 illustrates a side view of section A-A of the embodiment of figure 8,
figure 8 illustrates a top view of an embodiment according to the invention,
figure 9 illustrates a side view of section A-A of the embodiment of figure 10,
figure 10 illustrates a top view of an embodiment according to the invention, and
figure 11 illustrates a flowchart of a method according to the invention.

DESCRIPTION OF PREFERABLE EMBODIMENTS

[0016] In the present figures, the cover arrangement 1, and the ice rink 10 are not shown to accurate scale, but the figures are schematic, illustrating the basic structure and operation of the preferred embodiments. In this case, the components indicated by reference numerals in the accompanying figures correspond to the components indicated by reference numerals in this specification

[0017] The following embodiments are only examples. Although the specification may refer to "an" embodiment in several locations, this does not necessarily mean that each such reference is to the same embodiment(s), or that the feature only applies to a single embodiment. Single features of different embodiments may also be combined to provide other embodiments. Furthermore, words "comprising" and "including" should be understood as not limiting the described embodiments to consist of only those features that have been mentioned and such embodiments may contain also features/structures that have not been specifically mentioned. All combinations of the embodiments are considered possible if their combination does not lead to structural or logical contradiction.

[0018] Figure 1 illustrates the operating principle of an embodiment of the cover arrangement 1, when the cover arrangement 1 covers an ice hockey rink 10'. The cover arrangement 1 limits the energy consumption caused by the ice 11 described later in connection with figure 3 and elsewhere in this description. Energy consumption is limited both in terms of cooling energy of the ice 11 and in terms of heating energy of the ice sports facility surrounding the ice 11 during time periods when the ice 11 is covered with the cover arrangement 1. These time periods outside ice use, when the ice hockey rink can be covered, are more than a third of the ice rinks' total operation time, mainly consisting of nighttime and other longer time periods when the ice rink is free from ice sports or ice maintenance work.

[0019] In the embodiment of figure 1, the operational principle of the protective cover solution for the ice hockey rink is based on heat insulation provided by a closed, stable cold air pocket formed between the cover arrangement 1 and the ice 11, and on the insulation provided by the surface of the cover arrangement 1 itself.

[0020] In the embodiment of figure 1, the ice hockey rink 10' surrounding the ice 11, which has tight and closed sides, is completely covered with the cover arrangement 1 positioned clearly above the ice 11, and having the required airtightness, such that the cover arrangement attaches to an upper edge of the ice rink 2 or its inner side boards with the required tightness. The purpose of the cover arrangement 1 is to prevent the warm air flows caused by the ventilation of the sports facility from directing and mixing to the cold air pocket above the ice 11.

[0021] In the embodiment of figure 1, the cover arrangement 1 is therefore completely separate from the surface of the ice 11. In this case, a stable cold air pocket is formed in the closed space between the cover arrangement 1 and the ice 11, where the coldest and densest air settles against the ice 11. Above this coldest air layer, layers of warmer and less dense air are arranged due to lift. The stable cold air pocket created in this way acts as a heat insulator, limiting the heat transfer in the air above the ice 11 and the convection that dominates it. Preferably, heat transfer through heat radiation is further minimized by the cover arrangement 1 having low emissivity on its surfaces.

[0022] The distance of the cover arrangement 1 from the surface of the ice 11 can vary within the structural height of the boards of the rink surrounding the ice 11 according to the respective board structure and implementation solution. For example, in connection with the ice hockey rink 10', the distance can be up to the upper surface of the boards of the ice hockey rink 10' or to a rink glass surrounding it, when the cover arrangement 1 and the surrounding ice hockey rink 10' or other tightly constructed side structure together form a closed air

space surrounding the ice rink 3 above the ice rink 3.

[0023] In the embodiment of figure 1, the operating principle and structure of the cover arrangement 1 for the ice hockey rink 10' enables a cover arrangement 1 for covering the ice hockey rink 10' with a size of approx. 1800 m2, which is very thin, and light compared to its size, can be packed into a very small space, is easy to handle (packing, opening, spreading) and is cost-effective both in terms of material costs and manufacturability. The structural properties enabling the cover arrangement 1, as well as the airtightness required of the cover arrangement 1 and the durability and operation in accordance with its purpose of use without condensation disadvantages, can be solved with optimally selected, ultrathin and light coated textile materials found on the market (e.g. nylon and polyester).

[0024] Figure 2 illustrates an enlarged section of a cross-section view of an embodiment of fixing a cover arrangement 1 with the required tightness and strength to a board structure of an ice hockey rink 10' surrounding the ice 11. In this embodiment, a strongly magnetized outer periphery 3' of the cover 1 comprising a textile structure is fixed with magnetic force to a magnetic part 13' integrated in an upper edge of the ice hockey rink 10', the magnetic part 13' completely encircling the ice hockey rink structure.

[0025] In the embodiment of figure 2, the operating principle and structural features of the cover arrangement for the ice hockey rink enable the mechanization and use of the technical solution within the demands and restrictions set by the ice rink environment and conditions, as well as the adaptability of the cover arrangement (e.g. shape, external dimensions) allowing it to be retrofitted to varying ice sports facilities and ice hockey rinks (10').

[0026] The cover arrangement for an ice hockey rink as described above significantly reduces both the cooling energy consumption of the ice 11 and the heating energy consumption of the ice sports facility surrounding the ice 11 during covered periods of the ice hockey rink 10'. The cover solution thus brings significant energy and operating cost savings to ice sports facilities on monthly and annual basis.

[0027] The cover arrangement for the ice rink improves the air humidity control conditions of the ice sports facility during periods when the ice is covered, thus reducing the power requirement of air drying, bringing additional savings in the ice spots facility's energy costs.

[0028] With use of the cover arrangement, ice making can be enhanced and better temperature conditions for maintaining ice quality can be created. Therefore, also the requirements set by the ice making for dimensioning of the total power of the refrigeration system are lowered, which results in savings in investment and operating costs of the refrigeration system.

[0029] Figures 3 and 4 illustrate an embodiment of an ice rink 10 comprising ice 11 and boards 12 surrounding the ice 11. The ice 11 and the boards 12 surrounding the ice 11 are generally tightly fitted such that they form an uniform construction. This is a typical construction for an ice rink, and this construction is particularly typical for ice hockey rinks. However, the invention may also be utilized in other types of ice rinks having boards surrounding the ice. Not illustrated in the figures, the boards often further comprise see-through rink glass, made of polycarbonate, tempered glass, or acrylic, for instance.

[0030] Figure 3 further illustrates how the presence of heated air and the exposed ice 11 results in substantial heat flows between the heated air and the ice 11, which in turn results in high energy consumption as described in detail before.

[0031] Figures 5 to 10 illustrate further embodiments of a cover arrangement 1 for an ice rink 10, the cover arrangement 1 comprising a flexible cover part 2 having an area Ac at least as large as the area Ai of the ice 11 of the ice rink 10. The cover arrangement 1 further comprises fixing elements 3 arranged along the periphery of the flexible cover part 2 for detachably fixing the flexible cover part 2 to boards 12 surrounding the ice rink 10 such that a closed space is formed between the ice 11 and the flexible cover part 2. This configuration of features enables fixing the flexible cover part 2 to the boards 12 surrounding the ice rink 10 without requiring further support structures in contact with the ice 11. This allows a closed and internally open space to be formed between the ice 11, the flexible cover part 2, and the boards 12 surrounding the ice 11 together forming a closed, and stable cold air pocket in said closed space. In this cold air pocket, the coldest and densest air settles against the ice 11, and layers of warmer and less dense air are arranged above the coldest and densest air due to lift. This cold air pocket provides a technical benefit of acting as a heat insulator, limiting the heat flows between the heated air and the ice 11 dominated by convection thus, thus reducing the energy consumption of the ice sports facility. The flexible cover part 2 may also provide further insulation benefits on its own due to its material properties.

[0032] The flexibility of the flexible cover part 2 facilitates handling of the cover arrangement 1 when covering the ice 11 and when uncovering the ice 11. The flexibility also allows the cover arrangement 1 to be folded or bundled to compact the cover arrangement 1 for storage.

[0033] The vertical distance between the ice 11 and the flexible cover part 2 is limited by the structural height of the boards 12 surrounding the ice 11. The structural height of the boards 12 surrounding the ice 11 is dependent on the construction and implementation of the ice rink 10. As pointed out before, the boards 12 surrounding the ice may further comprise rink glass. The rink glass is in this instance considered to be part of the boards 12 surrounding the ice 11, and the cover arrangement 1 may also be fixed to said rink glass as long as the cover arrangement 1 and the boards 12 or other equivalent structures surrounding the ice 11 form a closed space with the ice 11.

[0034] There are multiple viable ways to implement the fixing elements 3 for detachably fixing the flexible cover

part 2 to cover the ice rink.

[0035] In an embodiment of the cover arrangement, not explicitly illustrated in the figures, the fixing elements 3 are magnetic elements. This allows the fixing elements 3 to be fixed to any surfaces having magnetic properties. Often the structure of the ice rink 10 comprises suitable iron structures, such as screws, bolts, rivets, or support beams, for instance. Therefore, by utilizing magnetic fixing elements 3, use of the cover arrangement 1 may not require any modifications to an existing ice rink 10. However, suitable inserts may be installed in the ice rink 10 to create better operating conditions for the magnetic fixing elements. Such inserts may be for example iron inserts embedded in the boards 12 surrounding the ice 11, such that the inserts do not disturb regular use of the ice rink 10 nor rules and regulations of the ice sports performed in the ice rink 10.

[0036] In an embodiment of the cover arrangement, not explicitly illustrated in the figures, the fixing elements 3 are suction elements. Suction elements can be used to attach the flexible cover part 2 to any suitable flat surface. Therefore, by utilizing suction elements, use of the cover arrangement 1 may not require any modifications to an existing ice rink 10.

[0037] In an embodiment of the cover arrangement, not explicitly illustrated in the figures, the fixing elements are peg elements. Such peg elements can be for example bolts, or other types of known pegs, which can be secured into a corresponding receiving element 13, such as a nut or a sleeve embedded in the boards 12 surrounding the ice 11. Preferably the receiving elements are embedded such that the embedded receiving elements do not disturb regular use of the ice rink 10 nor rules and regulations of the ice sports performed in the ice rink 10.

[0038] In an embodiment of the cover arrangement 1, not explicitly illustrated in the figures, the fixing elements 3 are hook elements, which can be secured to any suitable structures in the ice rink 10, such as an edge in the boards 12 surrounding the ice 11, or to corresponding receiving elements 13.

[0039] Depending on the construction of the ice rink 10, varying types of fixing elements 3 can be used in combination to achieve the desired detachable fixing of the flexible cover part 2 to the ice rink. To achieve desirable function of the cover arrangement, it may be preferable to use a combination of magnetic fixing elements and/or suction fixing elements and/or peg fixing elements and/or hook elements, for instance.

[0040] In the embodiments illustrated in figures 5 to 10, the boards 12 surrounding the ice 11 comprise receiving elements 13 corresponding with the fixing elements 3. Use of receiving elements 13 facilitate a stronger and more accurate fixing of the flexible cover part 2 to the ice rink 10. Thus, the use of receiving elements also facilitates covering of the ice 11, as the cover arrangement 1 is easier to set up correctly.

[0041] Preferably, the receiving elements 13 are set at a vertical distance d from the ice 11 of the ice rink 10, that allows the space to be formed between the ice and the flexible cover part 2. Preferably the vertical distance d is at least 10 centimeters to ensure that the cold air pocket formed in the space has sufficient height to provide desired insulation.

[0042] In the embodiment of figures 7 to 10, the receiving elements 13 are arranged at a top edge 12u of the boards 12 surrounding the ice 11. This allows the sides of the boards 12 surrounding the ice to remain unaltered, and the cover arrangement 1 utilizes a pre-existing structural edge in the ice rink 10 for accurate and easy positioning of the receiving elements 13.

[0043] In the embodiment of figures 5 to 6, the receiving elements 13 are arranged on the side 12i of the boards 12 surrounding the ice 11 that faces inside the ice rink 10. This allows the receiving structures to be arranged to any ice rink 10 having boards 12 surrounding the ice 11. Some ice rinks 10 may have rink glass extending from the boards 12 surrounding the ice 11 directly and in line with the surface of the boards. The effective height of the top edge of the boards 12 surrounding the ice 11 is therefore out of reach for most people, making it difficult to connect the fixing elements 3 with the receiving elements 13. It is therefore preferable to arrange the receiving elements on the side 12i of the boards 12 surrounding the ice 11 that faces inside the ice rink 10.

[0044] Preferably, the flexible cover part 2 comprises coated fabric. The fabric may be woven nylon or polyester fabric, particularly ripstop nylon or polyester fabric, for instance. Further, the fabric is preferably a single layer fabric. Such fabrics provide suitable weight and strength characteristics for implementing the cover arrangement 1. The coating may have lower heat radiation properties than the fabric itself to further improve the insulating properties of the cover arrangement 1. However, also other materials may be used for the flexible cover part 2, such as plastic film for instance.

[0045] The flexible cover part 2 is preferably lightweight, more preferably ultra-lightweight, in order to facilitate handling of the cover arrangement 1, and in order to reduce the forces acting on the fixing elements 3 when the ice rink 10 is covered. Preferably, the average weight of the flexible cover part 2 is less than 270 grams per square meter. Even more preferably, the average weight of the flexible cover part 2 is less than 70 grams per square meter. In a preferable embodiment, the average weight of the flexible cover part 2 is less than 40 grams per square meter.

[0046] The flexible cover part 2 is preferably thin, more preferably ultra-thin, in order to facilitate storage and compacting of the cover arrangement 1. A thin construction of the flexible cover part 2 allows the cover arrangement 1 to be folded, bundled, or rolled into to compact the flexible cover part 2 to be easily handled and stored when not used. Thinness of the flexible cover part 2 also in turn affects the weight of the flexible cover part 2, as it effects the volume of the flexible cover part. Preferably, the average thickness of the flexible cover part 2 is less

than 3 millimeters. Even more preferably, the average thickness of the flexible cover part 2 is less than 0.2 millimeters.

[0047] According to an embodiment of the cover arrangement 1, not illustrated in the figures, the cover arrangement 1 further comprises a rim construction along the periphery of the flexible cover part 2. This rim construction is preferably shaped to match the shape of the ice rink 10 to guide the flexible cover part 2 to follow the contours of the ice rink 10 in order to avoid air gaps between the fixing elements 3.

[0048] According to an embodiment of the cover arrangement 1, not illustrated in the figures, the fixing elements 3 are detachably attached to the flexible cover part 2. This may be implemented with common pinching clips, for instance. Detachably attached fixing elements 3 in the flexible cover part 2 provides an advantage that the positions of the fixing elements 3 may be altered to better suit the construction of a specific ice rink 10. Detachable attachment also allows different types of fixing elements 3 to be interchangeably used in the cover arrangement 1 thus improving the modifiability of the cover arrangement allowing broader fixing options depending on the construction of the ice rink.

[0049] Figure 11 illustrates a flow chart of an embodiment of a method for covering an ice rink 10, the method comprising steps: A taking into use a flexible cover part 2 having an area Ac at least as large as the area Ai of the ice 11 of the ice rink 10, B spreading the flexible cover part 2 to cover the ice 11 of the ice rink 12, and C fixing a periphery of the flexible cover part 2 to boards 12 surrounding the ice 11 to create a closed space between the flexible cover part 2 and the ice 11.

[0050] Further, the method preferably comprises that the periphery of the flexible cover part 2 is fixed in step C such that the closed space between the flexible cover part 2 and the ice 11 is internally open.

[0051] Further, the method preferably comprises that the periphery of the flexible cover part is fixed in step C such that the flexible cover part 2 is entirely separated from the ice 11 of the ice rink 10.

[0052] Further, the method preferably comprises that the periphery of the flexible cover part 2 is fixed in in step C such that the height of the closed space between the flexible cover part 2 and the ice 11 of the ice rink 12 is at least 10 centimeters. Preferably the height is from 80 centimeters to 120 centimeters. Most preferably 110 centimeters.

[0053] The method for covering the ice rink 10 is preferably performed when the ice rink is not in use.

[0054] The method for covering the ice rink 10 is preferably performed with the cover arrangement 1 as described.

[0055] It is to be understood that the above description and the accompanying figures are only intended to illustrate the present invention. It will be obvious to a person skilled in the art that the invention can be varied and modified without departing from the scope of the invention.

Claims

1. A cover arrangement (1) for an ice rink (10), the cover arrangement (1) comprising:

   a flexible cover part (2) having an area (Ac) at least as large as the area (Ai) of the ice (11) of the ice rink (10), wherein
   the cover arrangement (1) further comprises fixing elements (3) arranged along the periphery of the flexible cover part (2) for detachably fixing the flexible cover part (2) to boards (12) surrounding the ice (11) such that a closed space is formed between the ice (11) and the flexible cover part (2).

2. The cover arrangement (1) according to claim 1, wherein the fixing elements (3) are magnetic elements.

3. The cover arrangement (1) according to claim 1, wherein the fixing elements (3) are suction elements.

4. The cover arrangement (1) according to claim 1, wherein the fixing elements (3) are peg elements.

5. The cover arrangement (1) according to any of the preceding claims 1 to 4, wherein the cover arrangement (1) comprises a combination of magnetic fixing elements and/or suction fixing elements and/or peg fixing elements.

6. The cover arrangement (1) according to any of the preceding claims, wherein the boards (12) surrounding the ice (11) comprise receiving elements (13) corresponding with the fixing elements (3).

7. The cover arrangement (1) according to claim 6, wherein the receiving elements (13) are arranged at a top edge (12u) of the boards (12) surrounding the ice (11).

8. The cover arrangement (1) according to claim 6, wherein the receiving elements (13) are arranged on the side (12i) of the boards (12) surrounding the ice (11) that faces inside the ice rink (10).

9. The ice covering arrangement (1) according to any of the preceding claims, wherein the flexible cover part (2) comprises coated fabric.

10. The cover arrangement (1) according to any of the preceding claims, wherein the cover arrangement (1) further comprises a rim construction along the periphery of the flexible cover part (2).

11. The cover arrangement (1) according to any of the preceding claims, wherein the fixing elements (3) are detachably attached to the flexible cover part (2).

12. A method for covering an ice rink (10), the method comprising steps:

- (A) taking into use a flexible cover part (2) having an area (Ac) at least as large as the area (Ai) of the ice (11) of the ice rink (10),
- (B) spreading the flexible cover part (2) to cover the ice (11) of the ice rink (12), and
- (C) fixing a periphery of the flexible cover part (2) to boards (12) surrounding the ice (11) to create a closed space between the flexible cover part (2) and the ice (11).

13. The method according to claim 12, further comprising that the periphery of the flexible cover part (2) is fixed in step (C) such that the closed space between the flexible cover part (2) and the ice (11) is internally open.

14. The method according to claims 12 or 13, further comprising that the periphery of the flexible cover part is fixed in step (C) such that the flexible cover part (2) is entirely separated from the ice (11) of the ice rink (10).

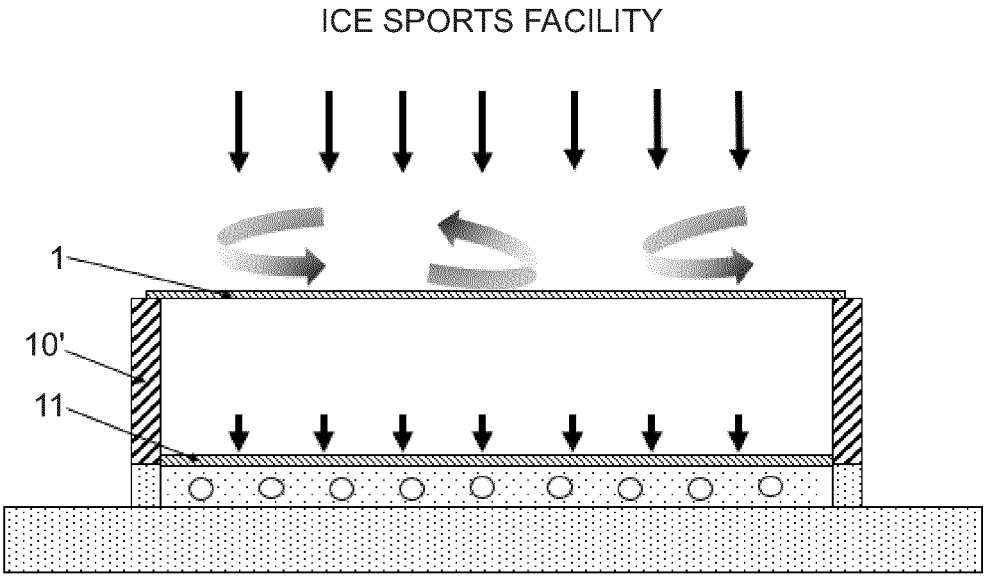

FIG. 1

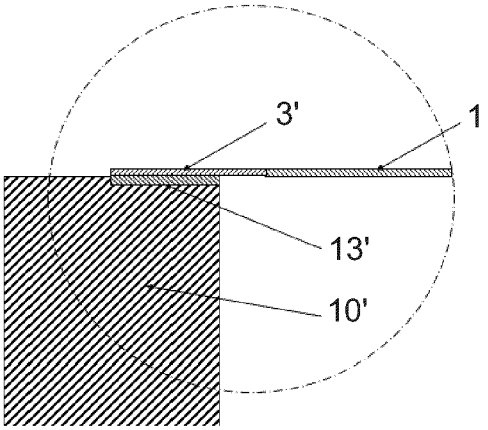

FIG. 2

SECTION A-A

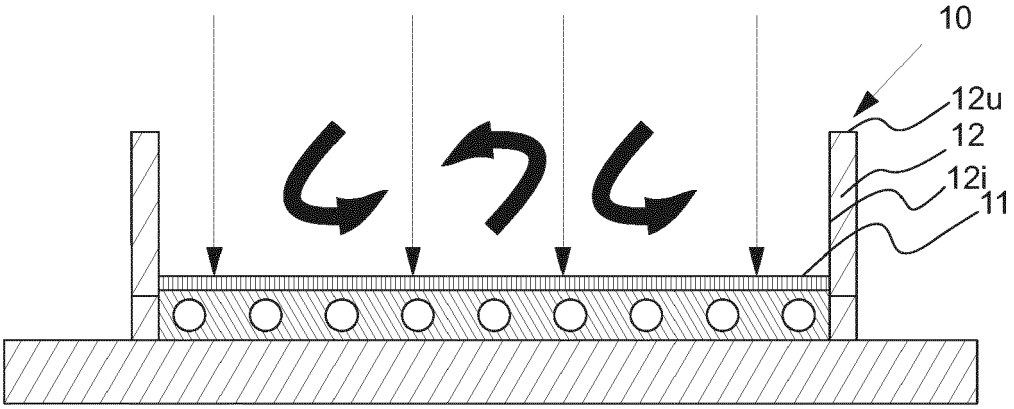

FIG. 3

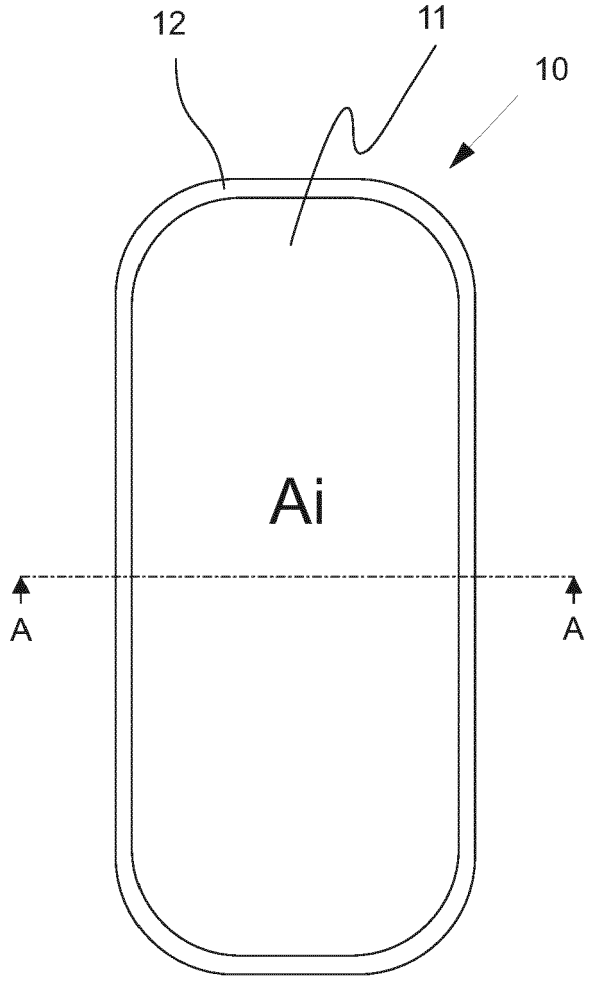

FIG. 4

SECTION A-A

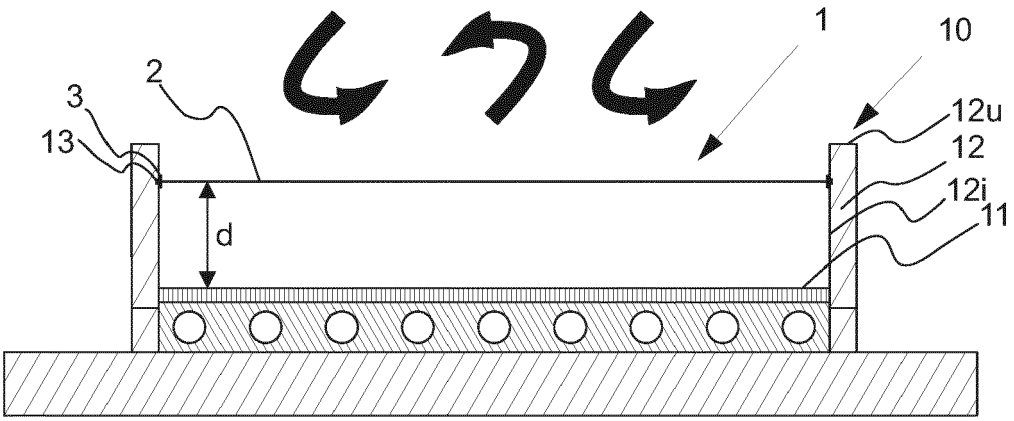

FIG. 5

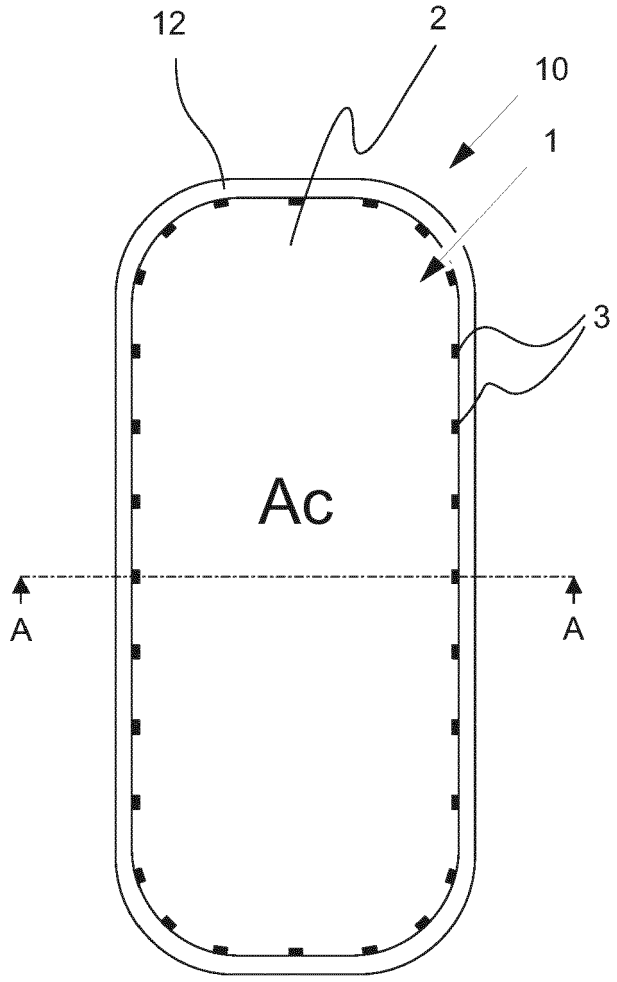

FIG. 6

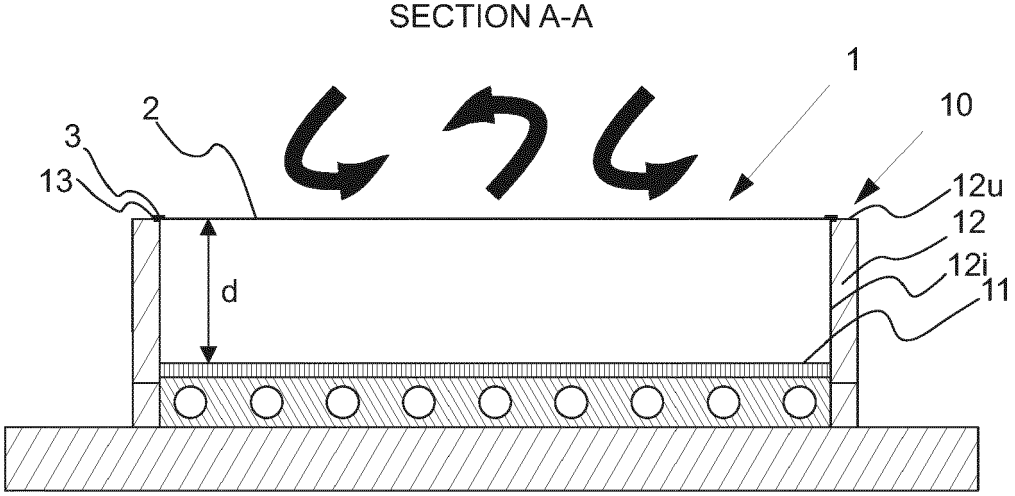

FIG. 7

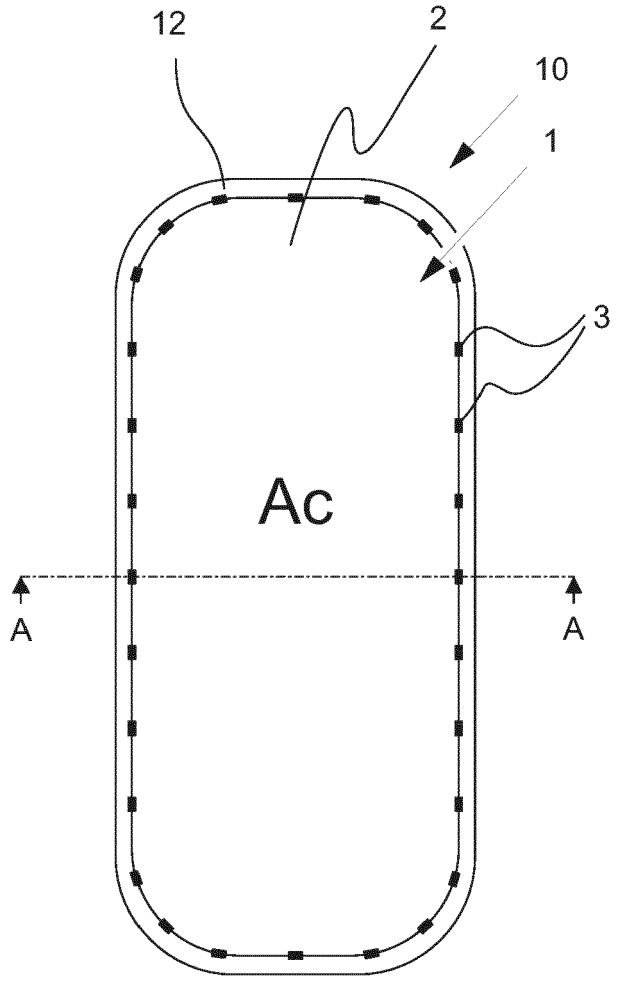

FIG. 8

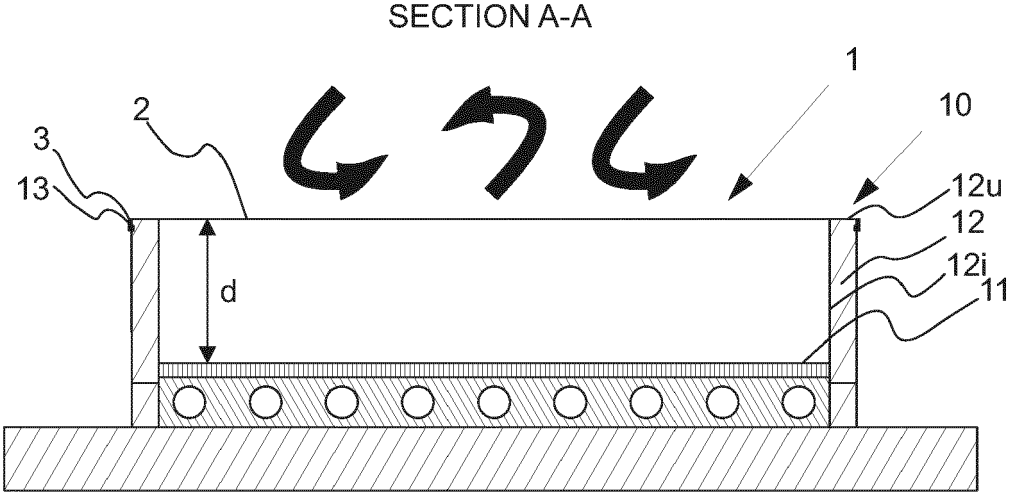

FIG. 9

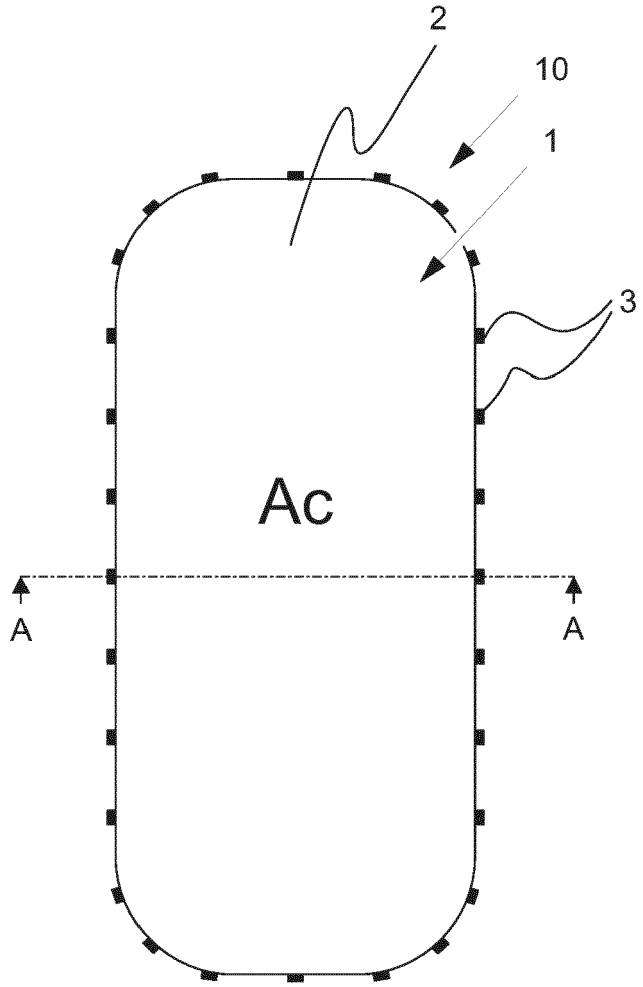

FIG. 10

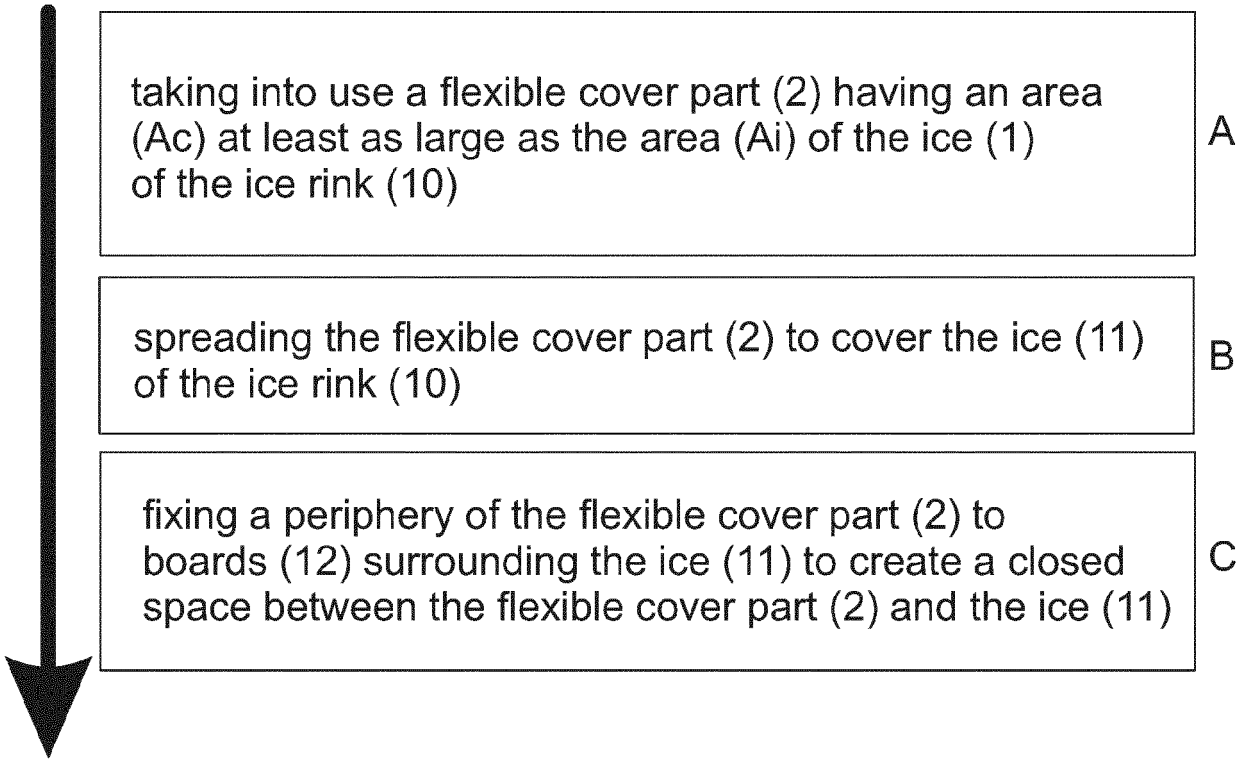
taking into use a flexible cover part (2) having an area (Ac) at least as large as the area (Ai) of the ice (1) of the ice rink (10)
A
spreading the flexible cover part (2) to cover the ice (11) of the ice rink (10)
B
fixing a periphery of the flexible cover part (2) to boards (12) surrounding the ice (11) to create a closed space between the flexible cover part (2) and the ice (11)
C

FIG. 11

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EUROPEAN SEARCH REPORT

Application Number
EP 22 21 2684

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	10 May 2023	Murer, Michael

CATEGORY OF CITED DOCUMENTS

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