Jan. 31, 1956 A. E. DICKSON 2,732,688

ILLUMINATED SKATING RINK

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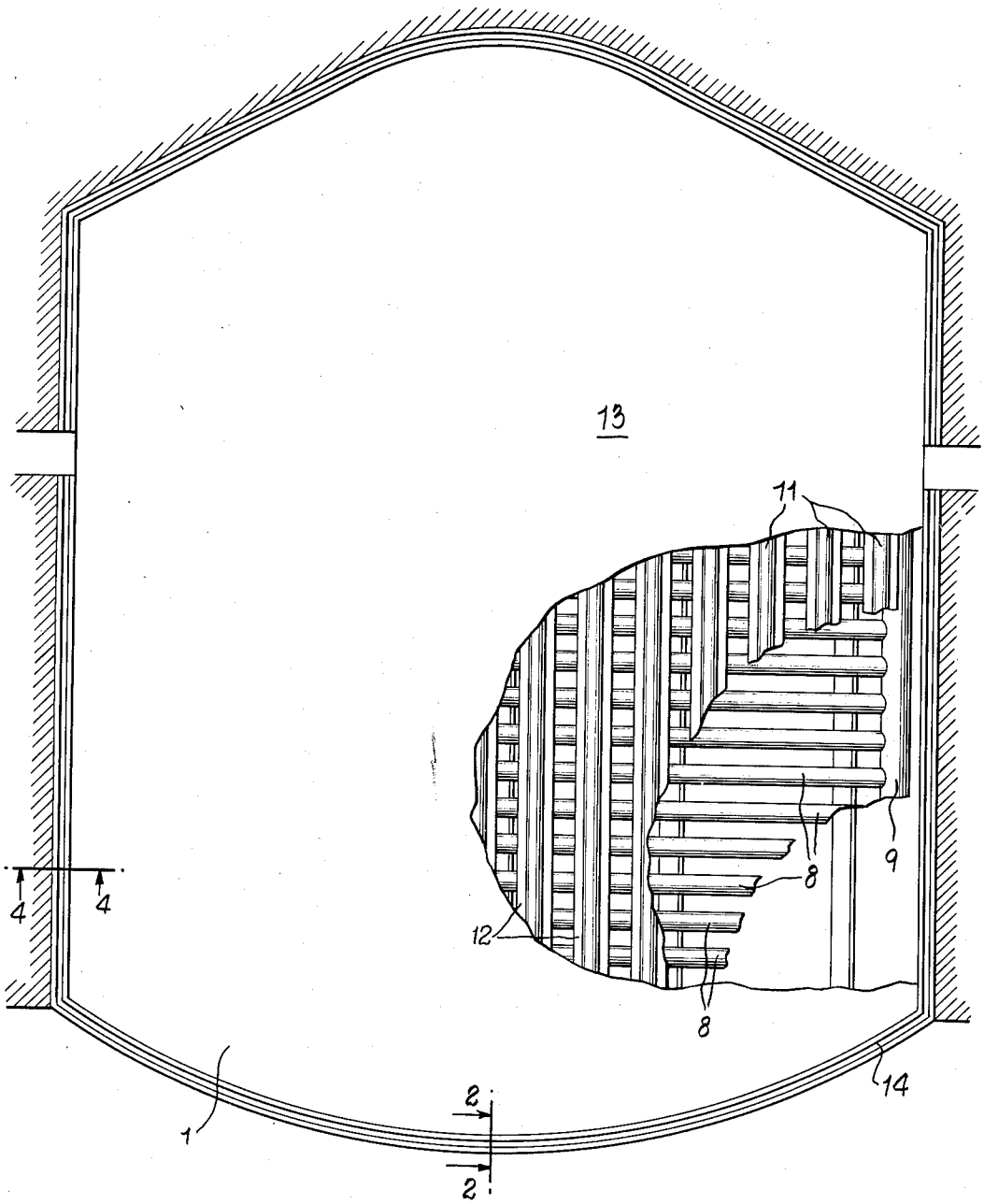

Fig. 1.

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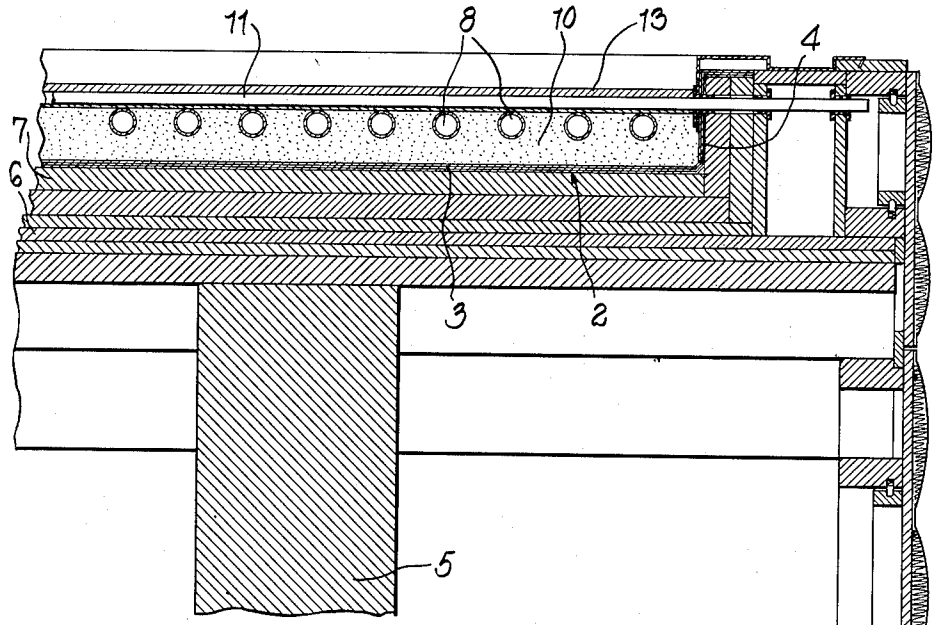
Fig. 2.



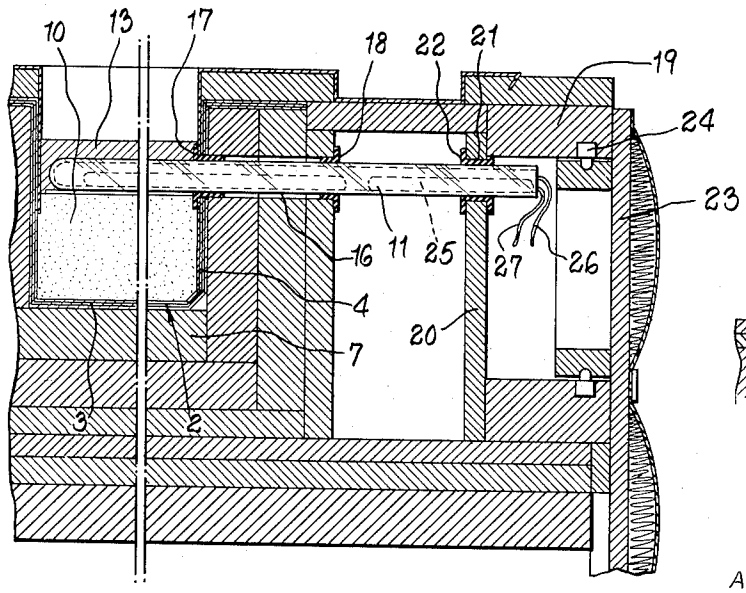


Fig. 3.

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ILLUMINATED SKATING RINK

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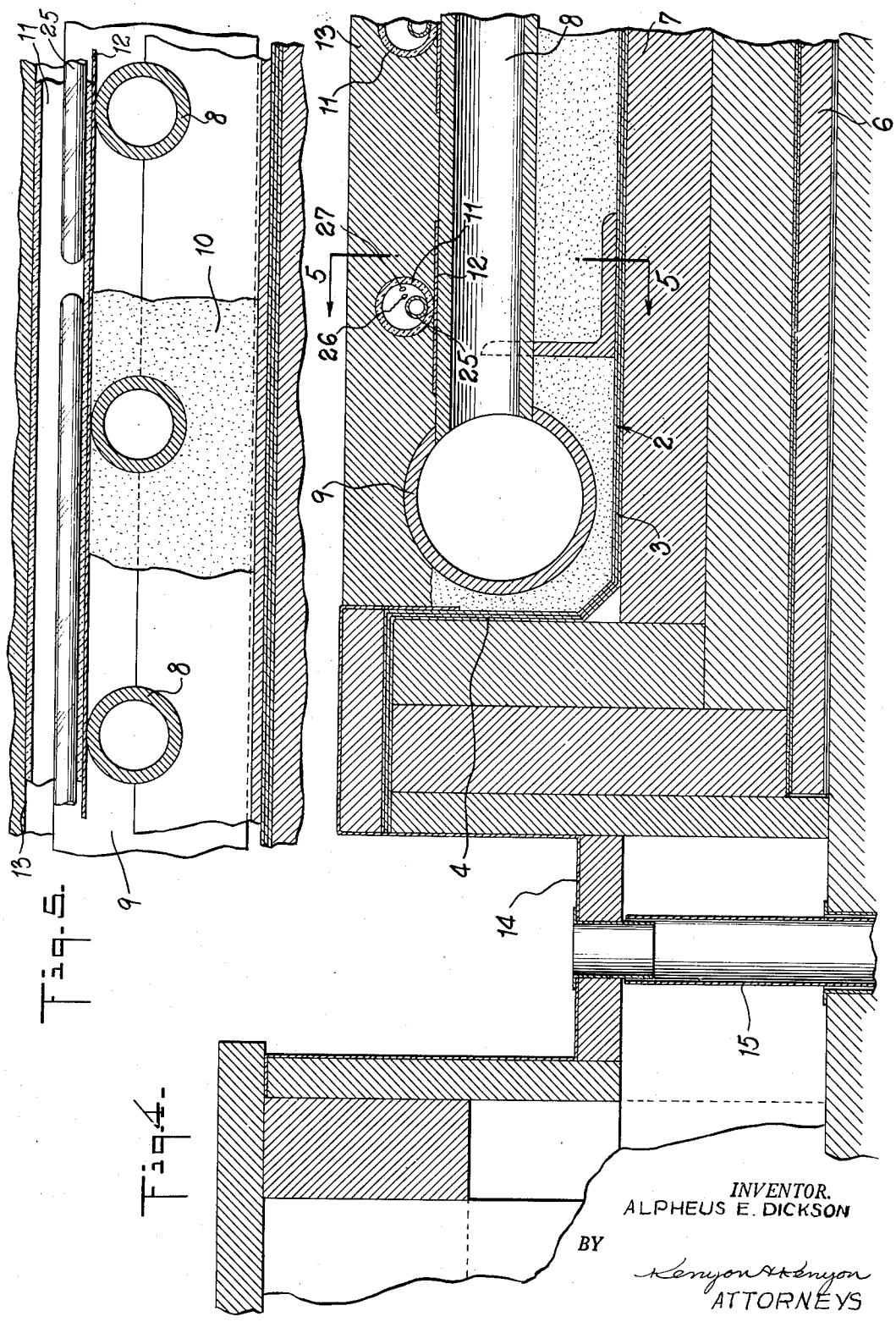

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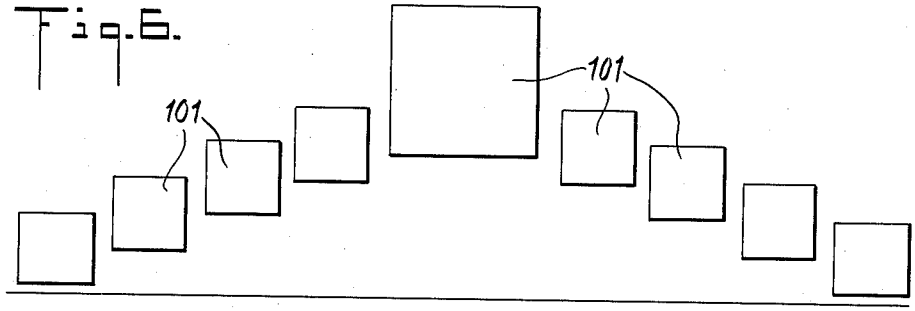
Fig. 6.



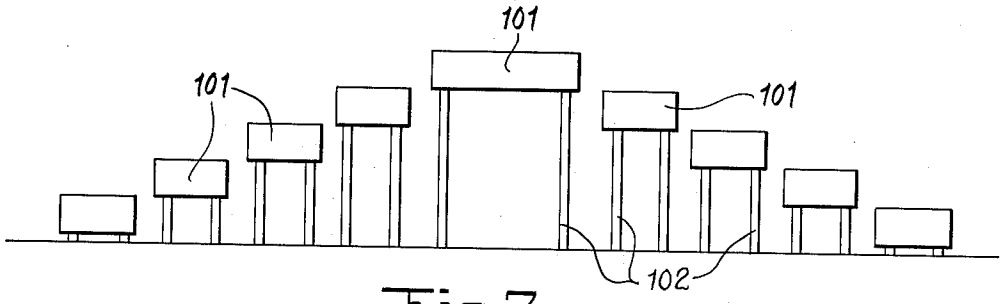


Fig. 7.

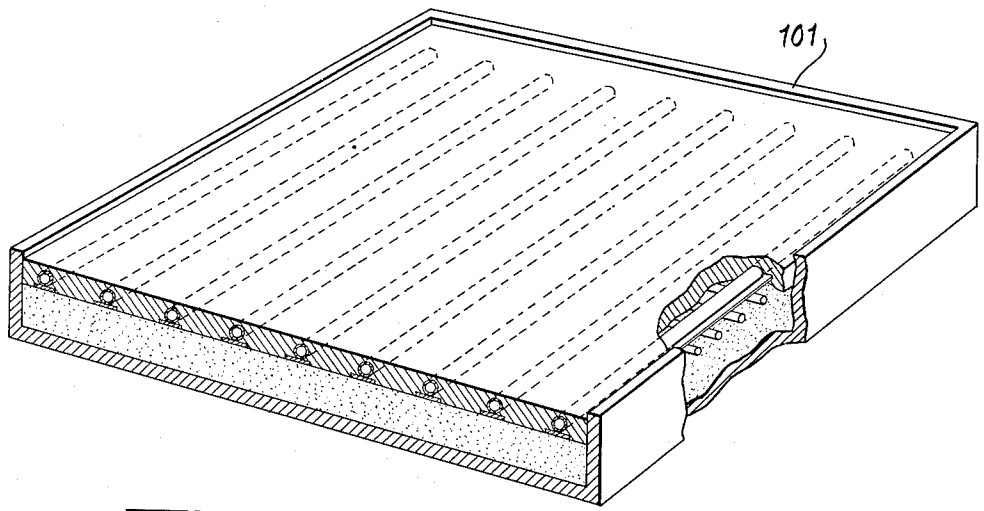


Fig. 8.

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2,732,688

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2,732,688

ILLUMINATED SKATING RINK

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Application March 19, 1953, Serial No. 343,479

9 Claims. (Cl. 62—12)

This invention relates to skating rinks and particularly to skating rinks for use in theatrical productions where it is desired to obtain beautiful and startling illumination effects.

Heretofore skating rinks have been illuminated from beneath the ice but such rinks have been impractical and extremely expensive and difficult to maintain.

Rinks have been provided with glass bottoms, over which water is frozen. Illumination has been supplied by light sources placed beneath the glass bottom. Such rinks have been impractical both from a construction and maintenance point of view.

Other illuminating means have been concealed in tubing and have been embedded in the surface of the rink. Rinks illuminated in this way have presented serious problems of maintenance and servicing.

The object of this invention is to obviate the difficulties of bottom illuminated skating rinks above mentioned.

Another object is to provide a practical, easily maintained rink which is adequately illuminated from beneath the surface of the ice.

Another object is to provide such a rink in which the lighting means may be easily serviced and in which burned-out illuminating means may be easily changed.

Another object of the invention is to provide a plurality of rinks which may be arranged in novel fashion in order to provide a suitable setting for a theatrical production.

Other objects and advantages of the invention will be apparent from the following description of the invention, which is shown and described here in the preferred form which has been found to be satisfactory in actual use and which is shown by way of illustration of the invention without any intention of limiting the inevntion to the form shown.

In the drawings:

Fig. 1 is a top plan view of the rink embodying the invention and in which certain portions of the surface of the rink and the underlying elements are broken away to show the construction;

Fig. 2 is a detailed sectional view taken on the line 2—2 of Fig. 1;

Fig. 3 is a still further and more greatly detailed view of the construction shown in Fig. 2;

Fig. 4 is a detailed sectional view taken on the line 4—4 of Fig. 1 showing details of the arrangement of the elements of the invention ;

Fig. 5 is a detailed sectional view taken on the line 5—5 of Fig. 1;

Fig. 6 is a top plan view of a form of the invention in which a plurality of rinks are arranged in a form suitable for a theatrical production;

Fig. 7 is a front elevational view of the form of invention shown in Fig. 6, and

Fig. 8 is a detailed view partly broken away of one of the rinks employed in the invention shown in Figs. 6 and 7.

The invention consists generally in providing a suitable watertight pan which is provided with suitable freezing coils for freezing water in the pan. Directly above these coils are disposed a plurality of transverse glass tubes which are embedded in the surface ice of the rink. These tubes may be closed at one end and are open at the other end which extends in watertight relationship through one side wall of the watertight pan which holds the ice. These tubes hold the illuminating means which consists preferably of a plurality of light bulbs or tubes which are connected in parallel and which, with their connectors, are inserted into the tubes, so that they may be easily removed for servicing without interfering with the ice surface.

In Fig. 1 the rink is indicated generally at **1**. It consists of a pan or waterproof container **2**, which has a bottom **3** and continuous side walls **4**, which are preferably copper. These walls are supported by suitable supporting beams **5** and flooring **6** and insulation **7**. Disposed adjacent the bottom of the pan are the freezing coils **8** which extend transversely of the rink and are connected by suitable headers **9**. The freezing solution is circulated through these coils, which are preferably embedded in a layer of sand **10**, which lies substantially flush with the upper surfaces of the coil.

Disposed above and extending transversely of the coils are glass tubes **11**. These lie directly on the surface of the sand, which is preferably painted with a white paint. Directly below each tube **11** is a strip **12** of aluminum foil which serves as a reflector to direct the light upwardly. The tubes **11** are frozen in the surface ice **13** adjacent the surface of the rink.

A suitable gutter **14** with drain **15** is provided to take care of overflow during filling of the rink.

The tubes **11** extend through apertures **16** in one side wall **4** of the pan or container. Suitable sealing gaskets **17** and **18** are provided to make the joint between the wall **4** and the tubes **11** watertight. The tubes **11** extend outwardly at one edge of the rink which is preferably the front of the stage. The ends are housed in a suitable housing **19** which has a supporting wall **20** with an aperture **21** and gasket **22**. A facing member **23** closes the front of the rink or stage to conceal the ends of the tube. It is held in place by suitable bullet fasteners **24** so it may be readily removed for servicing the illuminating means.

The illuminating means consists of a plurality of elongated tubes **25**, such as neon tubes. These tubes, with their connectors **26** and **27**, lie within the tubes **11** and the tubes **25** are connected in parallel so that if one tube becomes inactive or burns out during a performance, the total effect on the illumination will not be particularly great.

In addition to using neon tubes of various colors, which are particularly effective and which do not generate enough heat to materially affect the surface of the ice, it is possible to use ultraviolet light-producing bulbs or black light for use in connection with actors clothed in luminescent costumes.

When it is desired to change any of the lighting or to change burned-out bulbs, it is a simple matter to remove the facing member **23** and to pull the tubes or bulbs **25** and their connectors **26** and **27** from the tubes **11**. Burned-out tubes may be replaced or different tubes may be inserted for giving different lighting effects.

It will be noted that the construction above described is particularly satisfactory because the lighting elements are readily available for service. The structure is provided with adequate support for the weight of the pan, the sand, the cooling coils, the lights and the actors.

In Figs. 6, 7 and 8 is illustrated a form of the inven-

tion which has been found to be particularly attractive for theatrical production. A plurality of individual rinks **101** are provided. They are in general of the same construction as the rink above described but are smaller in size and are supported by suitable legs **102** which may vary in height to give a stepped effect between rinks, as indicated in Fig. 7. With such an arrangement, it is possible to have the center rink **101** slightly higher than the other rinks and at a higher elevation. The performers may work up to the center rink using the other rinks as steps, and during the production all of the rinks may be occupied by different performers.

The above described invention is a practical and effective medium of presenting skating shows. Adequate illumination is supplied at the surface of the ice and the coils used for the freezing medium may be standard metallic coils and it is possible to use standard freezing solutions without any regard for transparency since the lighting comes from above the coils. It is easy to make sure that the entire rink is watertight and of adequate strength to support not only the elements of the rink, but a large group of performers. It is likewise easy to change lighting effects and to service the lighting medium to replace burned-out elements or those which have become inactive for various reasons.

A preferred form of the invention has been described, although it will be clear to those skilled in the art that other forms of the invention could be employed without departing from the spirit or essential attributes of the invention. This form of the invention has been shown by way of illustration only and not by way of limitation.

What is claimed is:

1. An illuminating ice skating rink comprising a watertight pan comprising a bottom and side walls; a plurality of parallel transparent tubes in said pan and closed to water in said pan, each of said tubes having an open end extending through the side wall of said pan and having a watertight seal sealing said tube and pan together where the tube passes from the pan; a plurality of elongated illuminating bulbs lying loosely in each tube, each in end-to-end relationship to the other, and flexible electrical conductors lying loosely in each tube and connecting the illuminating bulbs in said tube in parallel electrical relationship, said illuminating bulbs and flexible conductors being removable through the open ends of said transparent tubes.

2. An illuminating ice skating rink comprising a watertight pan comprising a bottom and side walls; a plurality of parallel transparent tubes in said pan and closed to water in said pan, each of said tubes having an open end extending through the side wall of said pan and having a watertight seal sealing said tube and pan together where the tube passes from the pan; a plurality of illuminating bulbs lying loosely in each tube, and flexible electrical conductors lying loosely in each tube and connecting the illuminating bulbs in said tube in parallel electrical relationship, said illuminating bulbs and flexible conductors being removable through the open ends of said transparent tubes.

3. An illuminating ice skating rink comprising a watertight pan comprising a bottom and side walls; freezing coils in said pan adjacent the bottom thereof and covered by a layer of sand; a coat of light-colored paint on said sand; a plurality of parallel transparent tubes in said pan and closed to water in said pan and overlying said sand, each of said tubes having an open end extending through the side wall of said pan and having a watertight seal sealing said tube and the wall of said pan together where the tube passes through said wall; a plurality of bright metal foil strips, one underlying each of said transparent tubes; a plurality of elongated illuminating bulbs lying loosely in each tube, each in end-to-end relationship to the other, and flexible electrical conductors lying loosely in each tube and connecting the illuminating bulbs in said tube in parallel electrical relationship, said illuminating bulbs and flexible conductors being removable through the open ends of said transparent tubes.

4. An illuminating ice skating rink comprising a watertight pan comprising a bottom and side walls; freezing coils in said pan adjacent the bottom thereof and covered by a layer of sand; a plurality of parallel transparent tubes in said pan and closed to water in said pan and overlying said sand, each of said tubes having an open end extending through the side wall of said pan and having a watertight seal sealing said tube and the wall of said pan together where the tube passes through said wall; a plurality of bright metal foil strips, one underlying each of said transparent tubes; a plurality of elongated illuminating bulbs lying loosely in each tube, each in end-to-end relationship to the other, and flexible electrical conductors lying loosely in each tube and connecting the illuminating bulbs in said tube in parallel electrical relationship, said illuminating bulbs and flexible conductors being removable through the open ends of said transparent tubes.

5. An illuminating ice skating rink comprising a watertight pan comprising a bottom and side walls; freezing coils in said pan adjacent the bottom thereof and covered by a layer of sand; a plurality of parallel transparent tubes in said pan and closed to water in said pan and overlying said sand, each of said tubes having an open end extending through the side wall of said pan and having a watertight seal sealing said tube and the wall of said pan together where the tube passes through said wall; a plurality of elongated illuminating bulbs lying loosely in each tube, each in end-to-end relationship to the other, and flexible electrical conductors lying loosely in each tube and connecting the illuminating bulbs in said tube in parallel electrical relationship, said illuminating bulbs and flexible conductors being removable through the open ends of said transparent tubes.

6. An illuminating ice skating rink comprising a watertight pan comprising a bottom and side walls; freezing coils in said pan adjacent the bottom thereof and covered by a layer of sand; a plurality of parallel transparent tubes in said pan and closed to water in said pan and overlying said sand, each of said tubes having an open end extending through the side wall of said pan and having a watertight seal sealing said tube and the wall of said pan together where the tube passes through said wall; a plurality of illuminating bulbs lying loosely in each tube, and flexible electrical conductors lying loosely in each tube and connecting the illuminating bulbs in said tube in parallel electrical relationship, said illuminating bulbs and flexible conductors being removable through the open ends of said transparent tubes.

7. An illuminating ice skating rink comprising a watertight pan comprising a bottom and side walls; freezing coils in said pan adjacent the bottom thereof and covered by a layer of sand; a coat of light-colored paint on said sand; a plurality of parallel transparent tubes in said pan and closed to water in said pan and overlying said sand, each of said tubes having an open end extending through the side wall of said pan and having a watertight seal sealing said tube and pan together where the tube passes from the pan; a plurality of bright metal foil strips, one underlying each of said transparent tubes; and illuminating means in each tube, said illuminating means being removable through the open ends of said transparent tubes.

8. An illuminating ice skating rink comprising a watertight pan comprising a bottom and side walls and having a layer of sand therein; a plurality of parallel transparent tubes in said pan and closed to water in said pan and overlying said sand, each of said tubes having an open end extending through the side wall of said pan and having a watertight seal sealing said tube and pan together where the tube passes from the pan; a plurality of bright metal foil strips, one underlying each of said transparent tubes; and illuminating means in each tube,

said illuminating means being removable through the open ends of said transparent tubes.

9. An illuminating ice skating rink comprising a watertight pan comprising a bottom and side walls and having a layer of sand therein; a plurality of parallel transparent tubes in said pan and closed to water in said pan and overlying said sand, each of said tubes having an open end extending through the side wall of said pan and having a watertight seal sealing said tube and pan together where the tube passes from the pan; and illuminating means in each tube, said illuminating means being removable through the open ends of said transparent tubes.

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