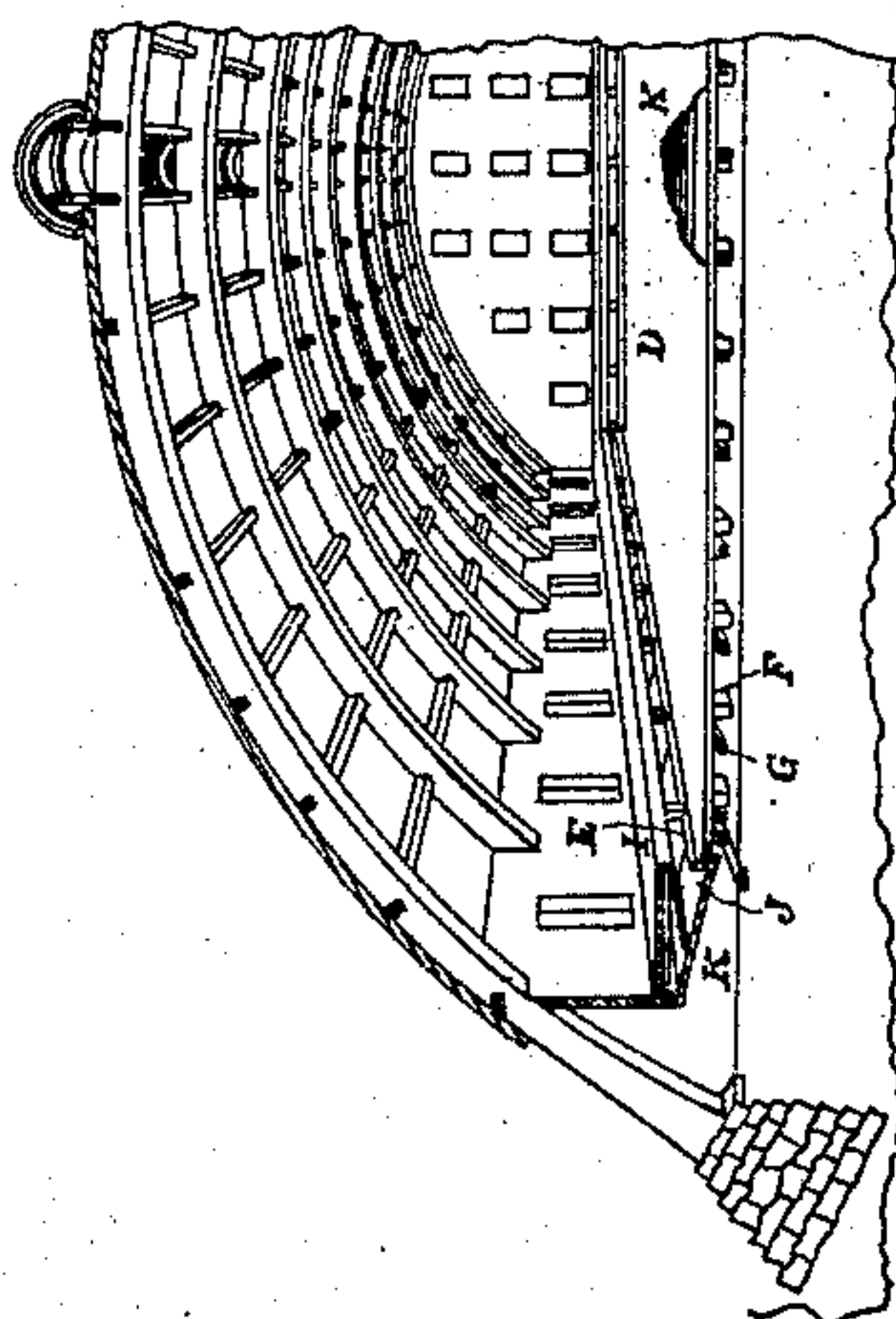


W. DENNISON.

SKATING RINK

No. 86,374.

Patented Feb. 2, 1869.



UNITED STATES PATENT OFFICE.

WILLIAM DENNISON, OF CAMBRIDGE, MASSACHUSETTS.

IMPROVED SKATING-RINK.

Specification forming part of Letters Patent No. **86,374**, dated February 2, 1869.

To all whom it may concern:

Be it known that I, WILLIAM DENNISON, of Cambridge, in the county of Middlesex and State of Massachusetts, have invented a new and Improved Skating-Rink; and I do hereby declare the following to be a full and exact description thereof, reference being had to the accompanying drawing, and to the letters of reference marked thereon, making part of this specification.

The object of my invention is to construct a skating-rink, to cover a large amount of ground, with the least expense, and to provide the same with a water-basin in such a way as to insure its freezing when the external air is cold enough to do so.

My invention consists in constructing a substantial roof in such a way as to support its thrust or lateral pressure by the natural ground instead of tie beams or rods, and a metallic basin, in order to freeze the water mostly from the under side, by causing a draft of air beneath.

As large buildings are generally required for skating-rinks, and are frequently filled with a great number of persons, and as the roof cannot be supported except from the sides of the building, it is of the utmost importance that they should be built sufficiently strong to insure stability. I have therefore devised the following method of construction.

The accompanying drawing shows a transverse vertical section, in perspective, of a skating-rink, showing all the several parts.

The building here shown is to be built of wood, as the most suitable material; but other material can be used, if preferred. The principal rafters A are made in the form of an arch, and are to spring from or rest upon stone piers B, built in the ground sufficiently deep to be below the action of frost. To these rafters are secured the purlins C, by which the covering of the roof is supported. The rafters A are made solid by securing boards or planks together of sufficient number for the strength required. They should be thickened as they approach the stone piers. The thrust of the roof is entirely supported by the earth. By this arrangement I get a stronger and better roof, at less expense, than by the use of tie beams or rods. The height of this roof should not exceed half its radius. For very

wide buildings, these rafters should be formed in two parts, one above the other, and trussed together with screw-bolts and struts between; but the principle of support will be the same.

The water or ice basin D, I propose to make of rolled sheet-zinc, or any other metal answering the same purpose. The sheets are to be soldered together to make the basin watertight. Around the edges of the basin is formed a gutter or corrugation, to prevent injury to the basin from shrinkage or expansion, (seen at E.) The blue line represents the edge of the zinc. There can be other corrugations made for this purpose; or the whole bottom may be corrugated, if found necessary. The basin is to be supported from the ground upon masonry-pins or wooden piles F, upon which joists G are secured, and across these joists are laid narrow boards about one inch thick, more or less, set up edgewise, (as seen at H, where the ice and bottom of the basin are broken away,) all to be placed a suitable distance apart to give the required stiffness, and arranged in such a way as to give a free circulation of air to the under side of the zinc basin.

There is a platform, I, extending a part or fully round the inside of the building, beneath which inclined shutters J J' are hung to the outer sill of the platform I, in such a way as to allow the inner edge to be raised or lowered to admit or shut out the air from beneath the basin, as may be required. Above these shutters J J' is a second shutter, K, hung in the same manner to the inner sill of the platform I, its outer edge being allowed to slide upon the shutters J J' as it is raised or lowered.

The drawing shows the shutters on the sides J open, and those on the side J' closed, from the external air. In this position the air will pass in at J, and come in immediate contact with all parts of the bottom of the zinc basin, and pass above the shutter J' to the upper surface of the basin, and out of the ventilator L in the top of roof. The arrows on the drawing represent the direction of this current of air. When the wind blows from the contrary direction, these shutters will be reversed, in order to take the air in in the opposite side of the building. In extreme cold weather the shutters on all sides

can be opened, which shuts the air (which would otherwise pass through them) entirely from the interior of the building, which can therefore be kept comparatively warm without injury to the solidity of the ice, as the shutters in this position give a free circulation of the external cold air beneath the basin. When the temperature of the external air is so high as to be injurious to the ice, all the shutters can be closed, which will assist in preserving the ice.

Ice made in the manner here described—viz., by freezing the water from its under side—will be more durable, as it will be harder, more solid, and clearer than it would otherwise be, for the air within the water will be driven out as it becomes frozen.

Skating-rinks constructed in this manner are not only applicable to the locality of the ground, but can be built in the upper part of any suitable building.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination of a skating-rink with a metallic basin, D, corrugated gutters E, and supporting-frame F G H, arranged in such a manner as to admit a free circulation of air to the under side of the basin, for the purpose above specified.

2. The shutters J K, in combination with a metallic basin, D, constructed in the manner and for the purpose as above set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM DENNISON.

Witnesses:

L. MARVETT,

J. W. HAMMOND.