

INDOOR CURLING.

The illustrations of this subject are taken from the Thistle Association club house, Hoboken, N. J. Indoor curling is a new idea in this country. Formerly the curling clubs played their games at the different parks around New York and vicinity. The accommodations being so poor at these places, the different clubs formed themselves into an organization known as the Thistle Association and built a large club house where they could have their games day and night all winter long. The floor of the curling hall is 100 feet in width and 150 feet in length, and is the largest floor for that purpose in the United States. The floor is raised from the ground about 4 feet and is made of narrow strips of yellow pine about 1 inch in thickness. The floor is sprayed to facilitate coating it with ice. The attendant in charge of the building on every freezing night starts in one corner and sprays the whole surface, the process taking about one hour. This practice is continued all through the winter. The spray falling on the ice freezes instantly. Under each window, on a level with the floor, are 4 feet by 2 feet swinging traps, which are opened on freezing nights to let in the cold air. The ice during the latter part of the winter, after repeated sprayings, becomes about 2 to 3 inches thick.

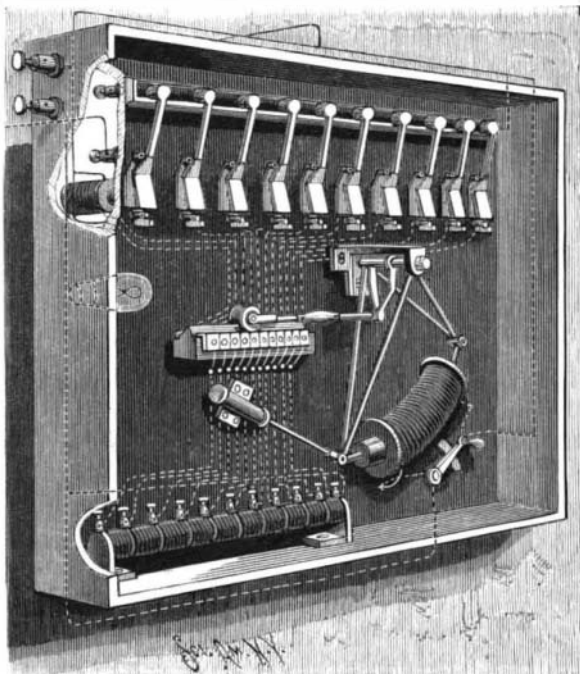
The circles at each end are painted in black on the bare floor, and can be seen through the ice. The rink from tee to tee is 38 yards in length. The circles around the tees are 2, 8 and 14 feet in diameter. Seven yards from each tee is a "hog line," every stone not clearing this line being called a "hog." There is also a line running at right angles to the rink half way between the tees, called the middle line.

The game is simple at first. The leader first tries to get as near the tee as possible, and his opponent has a similar object. During the game, if two or more stones have been well planted, the supporters of those who placed them are directed by their skips or captain to guard the winning stones rather than venture too near them, which may injure their position. The opposite players then try to knock off the guards and drive the well-planted stones away, so that they can get their own in a good position. Sometimes the stone nearest the tee is so well protected that it cannot be touched directly, and will take a master stroke to remove it. To do this, inringing is resorted to, which drives the stone in an oblique direction after striking the well-placed stone and becoming the winner instead. When the ice is blocked up so the tee cannot be seen, rebutting is resorted to. The player is told by his skip to put plenty of muscle into his arm, and the stone is sent with tremendous force, and goes crashing through the guards, sometimes changing the complexion of the game. Brooms are used by the players to sweep the ice dust which is scratched up by moving stones. By sweeping in front of a moving stone it gives it more power to move forward.

The curling stones weigh about 40 pounds each and are 12 inches in diameter across and about 5 inches in thickness. The best stones are made of Ailsa Craig granite. The best and hardest stone is taken from under the water. They are now being made by machinery, and cost \$15 per pair. They are very highly polished. Formerly they were made by hand, at a cost of from \$20 to \$30 each, according to finish. The club house is built on piling, and cost about \$18,000.

NEW ELECTRICAL GOVERNOR.

We give an engraving of an electrical governor for controlling the current on a circuit, by introducing resistance into the circuit or removing it therefrom, or by



O'BRIAN'S ELECTRICAL GOVERNOR.

changing the exciting current in the field magnet of the electrical generator.

This instrument, as will be seen by reference to the drawing, is operated by a curved solenoid, in which is suspended a curved armature, so that it may swing freely in the solenoid. The armature is made tapering, to secure regular action, and its movement is damped by means of a dash pot. The arms which support the curved solenoid are attached to a rock shaft, which carries a shorter arm, connected with a double roller by an adjustable rod. The double roller rolls on two series of electric contacts, one set of which is connected with wires leading to resistance coils and the other set to a switch mechanism, which sends the

current into storage batteries or other translating devices, when it is not required on the main line; that is to say, whenever the current in the main circuit is above the normal, the armature is drawn into the solenoid, moving forward the contact roller upon the contacts, cutting out one or more of the resistance coils and cutting in one or more of the switch magnets, thus shifting the circuit so as to allow the surplus current to go through storage batteries or other translating devices when it is not needed in the main circuit. When the current in the main circuit diminishes, the roller is returned by the armature, and in so doing cuts out one or more of the switch magnets, thus cutting out one or more storage batteries or other translating devices, and at the same time cuts in one or more of the resistance coils seen in the lower part of the apparatus, thus keeping the resistance of the governor constant.

This invention has recently been patented by Mr. John T. O'Brian, of Kearney, Nebraska.

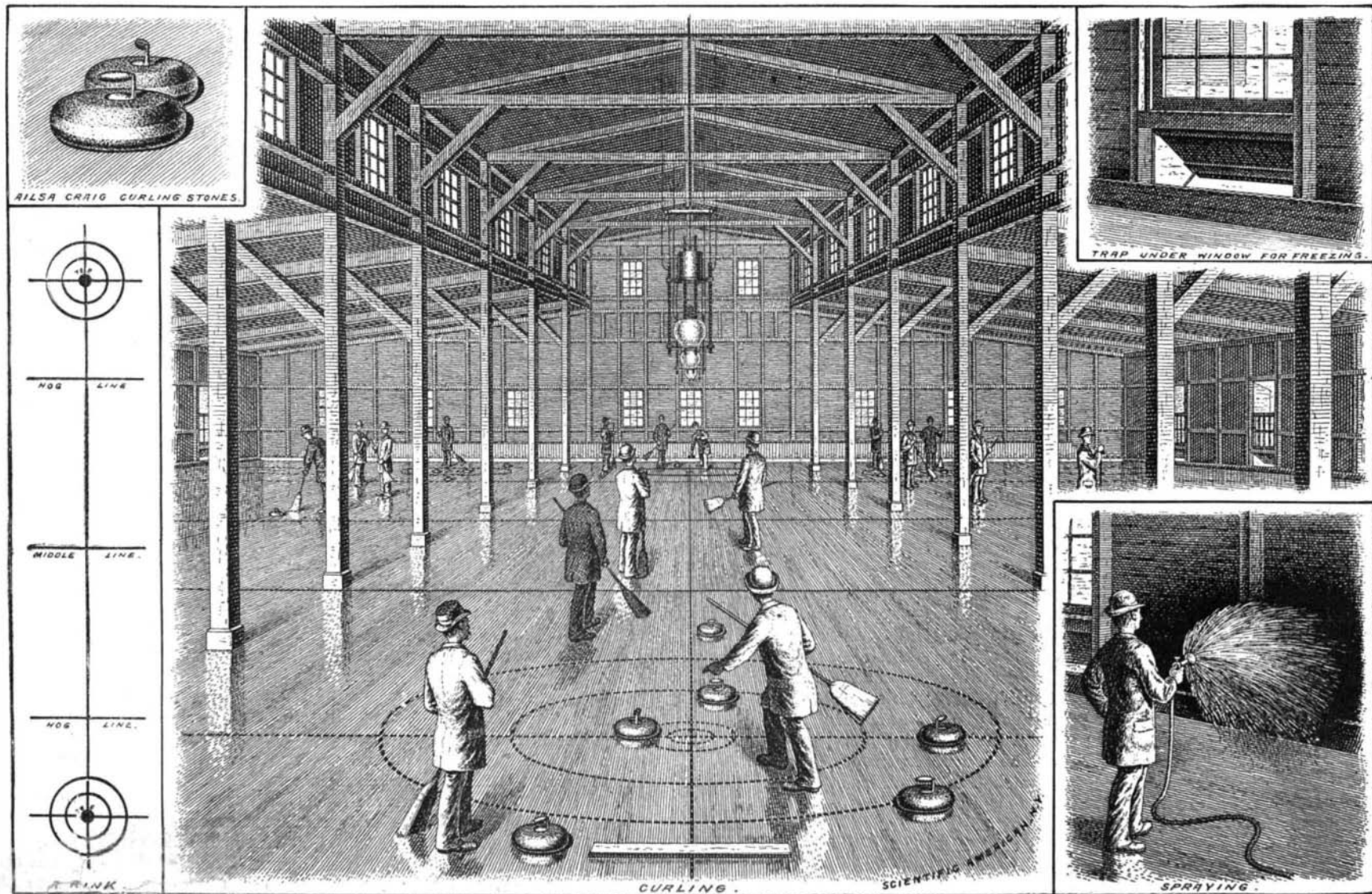
Purification of Water by Metallic Iron.

Metallic iron, in the form of either cast iron borings or steel punchings, is placed in a cylinder so arranged that by a slow rotation the iron may be continuously showered through the water, which is being passed at a moderate speed through the same cylinder. The chemical action consists in great part in the conversion of the iron into ferrous carbonate, through the agency of the carbonic acid, which partly dissolves in the water and partly remains suspended in the form of dark green turbidity. On exposure to air the iron is converted into ferric hydroxide, which, settling rapidly, carries down with it and oxidizes the organic matter. The flocculent sediment permits of rapid and perfect filtration through a simple sand filter. For evidence of its success and efficiency it is only necessary to point to the continued successful use of the process at Antwerp, Dordrecht, Paris, Nancy, and other places.

Mounting Paste for Lantern Slides.

For attaching lantern slide bindings to the glass nothing is better than bichromated paste, which is used for attaching paper to glass in the manufacture of electric machines, and which is a most useful paste for many purposes in damp climates. It is made as follows: Flour, 2 teaspoonfuls; water, 4 ounces; bichromate of potash, 5 grains. The flour must be rubbed to a smooth batter with the water, then placed in a saucepan over a fire, and kept stirred till it boils. Add the bichromate slowly, stirring all the time. Then stand to cool. *This paste must be kept in the dark;* and used as soon as possible.

Soak the paper in it, attach to the glass, and then place in direct sunlight for a day. This sets up a chemical change in the bichromate and renders the paste insoluble.—M. V. Portman, Jour. Photo. Society of India.



THE THISTLE CLUB CURLING FLOOR, HOBOKEN, N. J.