Oct. 18, 1938. E. S. BURROW 2,133,423

ATTACHMENT TO CURLING STONES

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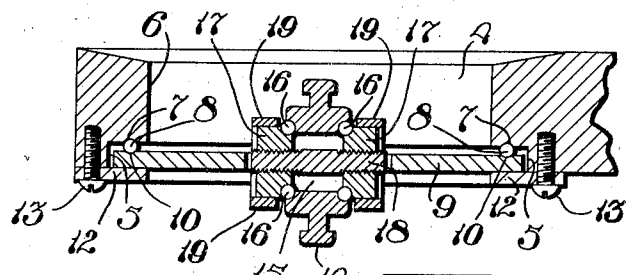


FIG. 3.

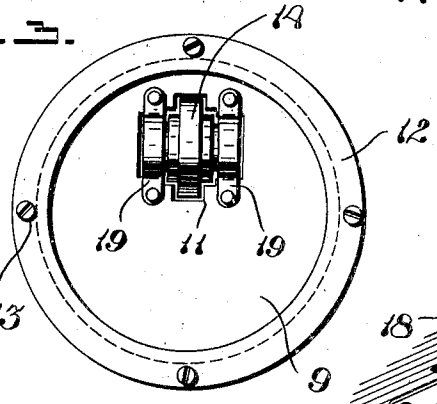
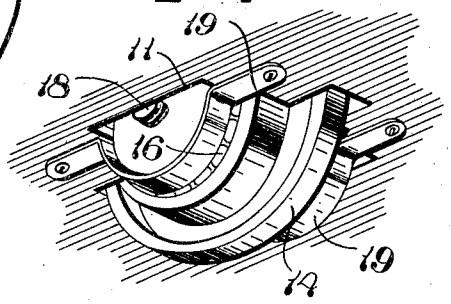


FIG. 4.



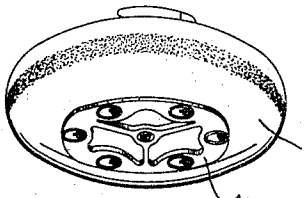


FIG. 1.

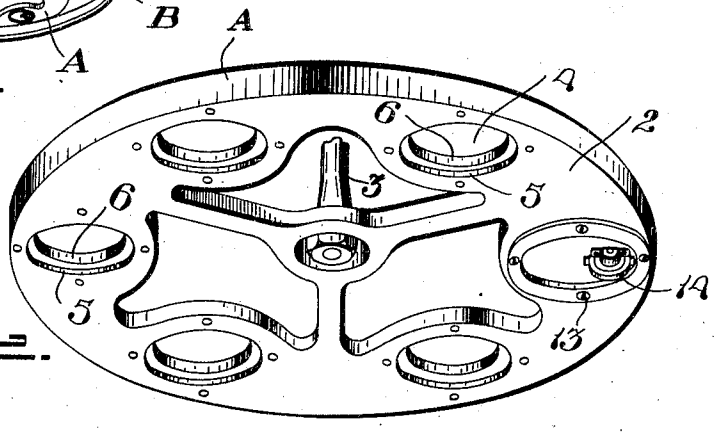


FIG. 2.

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UNITED STATES PATENT OFFICE

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ATTACHMENT TO CURLING STONES

Ernest S. Burrow, Winnipeg, Manitoba, Canada

Application May 9, 1935, Serial No. 20,692
In Canada May 9, 1934

1 Claim. (Cl. 16—21)

This invention relates to improvements in attachments to curling stones and an object of the invention is to provide a means by which the game of curling may be played upon surfaces other than the usual ice rink.

A further object of the invention is to provide an attachment which will enable the curling stone to be rolled along a smooth surface and yet have its centre of gravity in close proximity to the ground.

A further object of the invention is to provide an attachment for curling stones which will enable the stone to run easily in the direction in which it is propelled and also to cannon off another object against which it may strike in a manner similar to that of a curling stone upon an ice surface.

A further object of my invention is to provide an attachment of the character herein described which may be removably attached to the under side of a standard curling stone without mutilating the curling stone in any way or rendering it unsuitable for subsequent use on ice upon the removal of the attachment.

With the above more important objects in view and such other objects as may appear as the specification proceeds, my invention consists essentially in the arrangement and construction of parts all as hereinafter more particularly described, reference being had to the accompanying drawing, in which:—

Fig. 1 is a reduced perspective view of a curling stone with my device in situ thereupon.

Fig. 2 is a perspective view of the main ring which is fitted to the under side of a curling stone centrally thereof.

Fig. 3 is a plan view of the swivelling roller means used in connection with my device.

Fig. 4 is a perspective view of one of the rollers used in connection with my device.

Fig. 5 is a central sectional elevation of one of the rollers used in connection with my device.

In the drawing like characters of reference indicate corresponding parts in the different figures.

My attachment A is removably connected to the under side of a curling stone B and consists of a spider 2 which is centrally attached by means of a shank 3 to the under side of the curling stone, the shank passing centrally through the curling stone and being secured upon its upper end to the usual handle by which the curling stone is manipulated.

My spider 2 is provided with a plurality of circumscribing orifices 4, the lower edges 5 of the walls of these orifices being machined to a greater diameter than the upper edges 6 thereof as most clearly shown in Figures 2 and 5. A circumscribing ball race 7 is formed upon the annulus extending between the outer periphery 5 and the inner periphery 6. Ball bearings 8 are placed in this race and are capped by a circular plate 9 having a circumscribing ball race 10 around its edge of the same diameter as the ball race 7.

The plate 9 is provided with an eccentrically located orifice 11 of the configuration most clearly shown in Figure 3 and the plate is maintained in bearing contact with the ball bearings by means of a flat annular ring 12 which is attached to the spider plate 2 by means of screws 13.

Within the orifice 11 is placed a ground roller 14. This roller is provided with an enlarged central orifice 15, the peripheral edges of which are concave, forming a partial race to receive further ball bearings 16. Cones 17 complete the circular races for the balls and these are maintained in opposition to each other by means of a threaded bolt 18 extending centrally through the said cones and through the ground roller 14.

The assembly comprising the ground roller, cones, ball bearings and bolt are maintained within the eccentrically located orifices 11 by means of flat semicircular brackets 19 upon either side of the ground roller. Two brackets are located on the under side of the plate and two upon the upper side and between them, they encircle the cones as clearly shown.

The action of this swivelling rolling unit may now be clearly seen. If the curling stone is impelled along a flat surface and strikes another stone, it will glance off and the plate 9 will make a partial revolution below the ball race corresponding to the angle of impact of the curling stone.

From the foregoing, it may be seen that I have provided a means whereby the game of curling may be practiced upon any hardwood floor or even upon a smooth concrete floor by means of attachments which may be purchased at small expense and can be attached to the standard curling stone.

Since various modifications can be made in the above invention, and many apparently widely different embodiments of same, made without departing from the spirit and scope thereof, it is intended that all matter contained in the accompanying specification shall be interpreted as illustrative only and not in a limiting sense and I desire only such limitations placed thereon as are justifiable in the light of anticipating inventions

published or in public use more than two years prior to the filing date of this specification.

What I claim as my invention is:—

A swivel assembly for use with a base plate removably attachable to the underside of a curling stone, the said plate being provided with a plurality of circular apertures adjacent the periphery thereof extending through said plate, the circumscribing wall of each aperture being stepped at a point medially of the thickness of the plate whereby the lower portion of each aperture is of a greater diameter than the upper portion, said assembly consisting of a circular rotatable plate provided with a circumscribing ball race, said plate being designed to be received within the lower portion of one of said apertures, ball bearings being positioned within said ball race, an annular retaining plate extending around said rotatable plate for retaining said rotatable plate in position, said retaining plate being secured to said base plate, said rotatable plate being provided with an offset aperture, a shank secured within and extending across said aperture, a pair of opposed cones extending around said shank and a freely mounted roller positioned between said cones.

ERNEST S. BURROW.