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W. S. FLYNN ET AL

INDOOR PUTTING GREEN

Filed Jan. 27, 1922

Fig 1

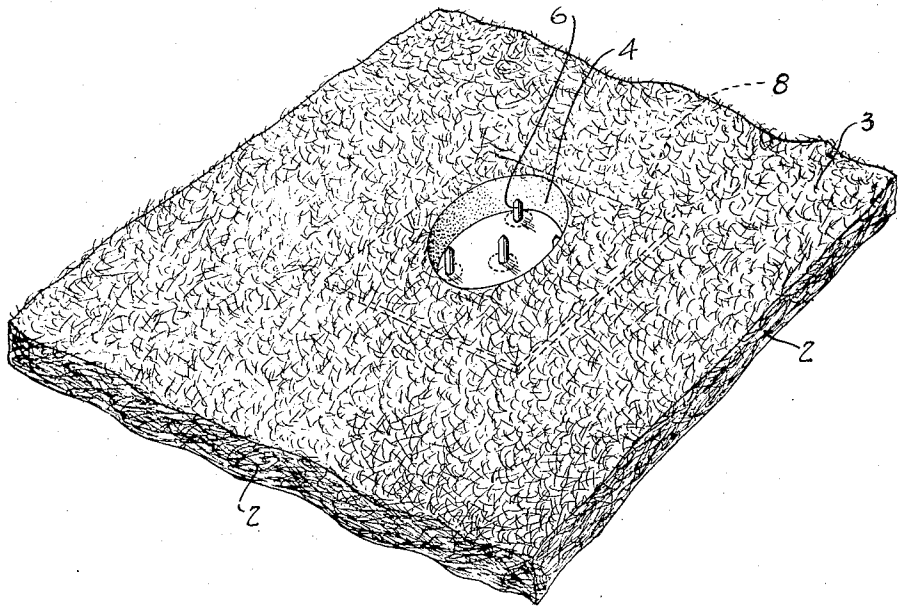
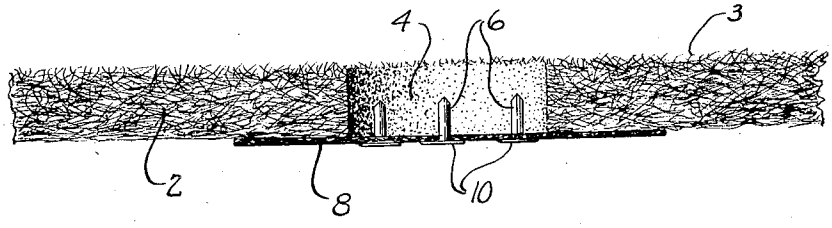


Fig 2



INVENTORS

William S. Flynn

Robert H. Faucher

BY Newell and Spencer

ATTORNEYS

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WILLIAM S. FLYNN, OF ARDMORE, PENNSYLVANIA, AND ROBERT H. FANCHER, OF PORT CHESTER, NEW YORK.

INDOOR PUTTING GREEN.

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To all whom it may concern:

Be it known that we, WILLIAM S. FLYNN and ROBERT H. FANCHER, citizens of the United States, residing, respectively, at Ardmore, Pennsylvania, and Port Chester, New York, have invented certain new and useful Improvements in Indoor Putting Greens, of which the following is a clear, full, and exact description.

This invention relates to artificial putting greens, particularly adapted for use in indoor golf or putting practice, and also to a novel process for making such artificial putting greens.

An object of the invention is to provide a putting surface having as nearly as possible the characteristics of the surface of the natural putting green, both with respect to the resiliency of the turf and also with respect to the effect upon the ball of the grass as ordinarily found upon the natural greens.

Another object is to provide an artificial putting green which may be laid upon any floor or other flat surface without special provision therefor, and which, when thus laid, will present to the player substantially the same conditions which he would encounter upon the natural green, whereby the practice which he can thus have indoors will be equally useful outdoors.

Other objects and important features of the invention will appear from the following description and claims when considered in connection with the accompanying drawings, in which—

Fig. 1 is a perspective view of a putting green embodying the present invention; and

Fig. 2 is a section showing the irregular structure of the sheet of felt employed to provide the putting surface.

In practicing the process of making the novel felt which presents a putting surface having the physical characteristics of a natural putting green, it is important at the various stages of the process so to treat the material of which the felt is formed that the ultimate product will have the desired nap or roughness of fibre on the surface, this nap or roughness of fibre preferably consisting of irregularly directed and projecting hairs of which the felt is made, the amount of projection and irregularity of the direction corresponding to the projection and irregularity of direction of the grass upon a natural putting green, due regard being also had to the stiffness and the retarding action of the hair upon a ball as compared with that of grass, whereby the length of the nap or the roughness of the fibre is made to give a fastness or slowness corresponding to that of the natural green.

We have found that a felt made from cattle hair and particularly from cattle hair comprising bristly fibres has, when treated by our novel process, a surface having the physical characteristic desired. In other words, this novel felt made by this novel process provides a putting surface that reacts upon the ball in substantially identically the same way that the ordinary putting green reacts upon the ball, whereby the player may obtain by indoor practice a skill which will avail him equally as well when playing outdoors.

In preparing this novel felt, in order both that it may have the desired characteristics hereinabove pointed out and that it may keep them over a long period of hard usage, it is important not only that the cattle hair employed be selected with respect to its physical characteristics but that in preparing the raw material it be cleaned more thoroughly than stock used for other purposes. Moreover, in the carding process it is important that the stock be so handled that the fibres will be "up-ended." We have found that the desired "up-ending" may be effected by running the stock on a Blemire lapper.

In order to retain the desired nap or roughness of fibre on the surface, this felt, unlike other felts, cannot be pressed in the finishing and attention must therefore be given to avoid wrinkles in the hardening and in the "fulling" processes. In the fulling process, in order to get the turf effect, it is necessary to use a stronger acid than with ordinary felts. We have found that the use of sulphuric acid at about 4 to 5° Tw. gives the desired result.

The felt is preferably dyed; for example, it may be dyed green to give a further simultation of a putting green, and in dyeing the felt care must be had in the boiling

step to see that it is carried on for exactly the proper length of time and no longer, and when this is done we have found that the boiling step also aids in securing the desired surface characteristics.

As above pointed out, the felt is not pressed in the finishing operation but instead is merely stretched and dried.

After the felt is made, we have found that the fastness or slowness of the surface may be regulated through the use of a vacuum cleaner and therefore as a further step in the manufacture of this felt, we ordinarily employ a vacuum cleaner on the putting surface to regulate the length and evenness of the nap for putting.

Referring to the drawings, a portion of an artificial putting green embodying the present invention is shown in perspective in Fig. 1 and in section in Fig. 2, and it will be noted that the felt 2, which provides the putting surface for the artificial green, is of substantial thickness to give the desired turf effect, and that a very substantial portion of the hairs 3 in the upper surface are "up-ended" so that they project from the surface but not all in the same direction, being irregularly directed and positioned with respect to each other, whereby a close simulation of the grass upon the natural green is obtained. In determining the amount of projection, regard is of course had to the relatively retarding effects of the hair and the grass upon the ball so that the fastness or slowness of the putting surface may be gaged to correspond with that of the natural green.

In order that this artificial green may be laid upon a floor without special preparation therefor and still provide a hole into which the ball may be putted in the usual manner, it will be noted that a novel feature of the invention is the provision of a hole 4 of a depth substantially corresponding to the thickness of the felt of which the artificial putting green is made, with means in this hole to prevent rebounding of the ball. Various means may of course be provided for this purpose, but we have found that a very simple and effective means comprises a series of pins 6 having slightly pointed ends, the pins standing substantially vertical in the hole and being so spaced that the ball when it drops into the hole will rest between the pins and one of the sides of the hole or possibly between pins alone. A convenient way of mounting these pins to give the desired result is to glue a strip 8 of suitable material and relatively thin as compared to the thickness of the felt 2 upon the underside of the felt, so that it covers the hole 4 and provides a bottom therefor and to provide the pins 6 with heads 10 so that they may be driven through the strip 8.

An artificial putting green constructed in the manner above described and hereinabove illustrated has been found to provide a putting surface upon which putting practice may be obtained indoors under conditions which will make it of great value to the player when playing upon the natural greens.

What we claim as new is:

1. An artificial putting green comprising a mat constructed when placed upon a floor or similar support to present substantially its entire upper surface so that a golf ball will rest thereon formed of a sheet of loosely felted animal hair, said sheet presenting a putting surface of irregularly directed and projecting bristly fibres.

2. An artificial putting green comprising a mat constructed when placed upon a floor or similar support to present substantially its entire upper surface so that a golf ball will rest thereon formed of a sheet of unpressed loosely felted cattle hair, said sheet presenting a putting surface of irregularly directed and projecting hairs.

3. An artificial putting green comprising a mat constructed when placed upon a floor or similar support to present substantially its entire upper surface so that a golf ball will rest thereon formed of an unpressed sheet, of substantially thickness, of loosely felted animal hair, said sheet presenting a surface of irregularly directed and projecting hairs, whereby there is obtained a physical simulation of grass covered turf with an effect upon the golf ball similar to that produced by the ordinary putting green.

4. An artificial putting green comprising a mat constructed when placed upon a floor or similar support to present substantially its entire upper surface so that a golf ball will rest thereon formed of a sheet of loosely felted animal hair, said sheet presenting a putting surface of irregularly directed and projecting hairs and being provided with a hole of a depth substantially corresponding to the thickness of the sheet, and means in said hole to prevent rebounding of the ball.

5. An artificial putting green formed of a sheet of loosely felted animal hair, said sheet presenting a putting surface of irregularly directed and projecting hairs and being provided with a hole of a depth substantially corresponding to the thickness of the sheet, said hole having therein pins projecting from its bottom to engage the ball and prevent rebounding thereof.

6. An artificial putting green comprising a mat constructed when placed upon a floor or similar support to present substantially its entire upper surface so that a golf ball will rest thereon formed of a sheet presenting a surface similar to that of a natural putting green, said sheet having therein a hole of a depth substantially corresponding

to the thickness of the sheet, and means within the area covered by the hole to prevent rebounding of the ball.

7. An artificial putting green formed of a sheet presenting a surface similar in its effect upon the ball to that of a natural green, said sheet having therein a hole of a depth substantially corrresponding to the thickness of the sheet, and pins projecting up from the bottom of the hole and so spaced as to receive the ball between them and to prevent its rebounding.

8. The process of making an artificial putting green, which comprises forming a sheet of loosely felted cattle hair in an unpressed condition, boiling the hair after felting, and treating the sheet to present a surface of irregularly directed and projecting hairs whereby there is obtained a physical simulation of grass-covered turf with an effect upon a golf ball similar to that produced by the ordinary putting green.

9. The process of making an artificial putting green, which consists in thoroughly cleaning cattle hair of comparatively bristly fibre, carding the hair in such manner as to up-end the fibre, felting the hair and hardening and fulling the felt, boiling and dyeing the felt, stretching and drying the felt without pressing and then going over the surface of the felt with a vacuum cleaner to secure the desired length and evenness of nap.

10. An artificial putting green formed of a sheet of substantially uniform thickness of loosely felted animal hair, and having upon its surface irregularly directed and projecting loosely fibres to simulate the grass-covered surface of a putting green.

Signed at New York, N. Y., this 26th day of January, 1922.

WILLIAM S. FLYNN.
ROBERT H. FANCHER.