Sept. 26, 1967 J. A. STANKO 3,343,843

SIMULATED GOLFING TURF IN WHICH DIVOT DEPRESSIONS MAY BE PRODUCED AND STUDIED

Filed Oct. 26, 1964 2 Sheets-Sheet 1

Fig. 1.

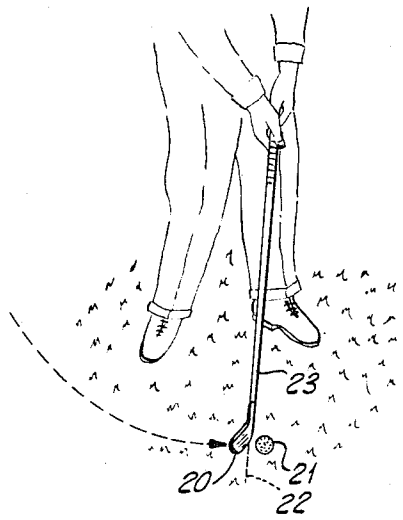


Fig. 2.



Fig. 3.

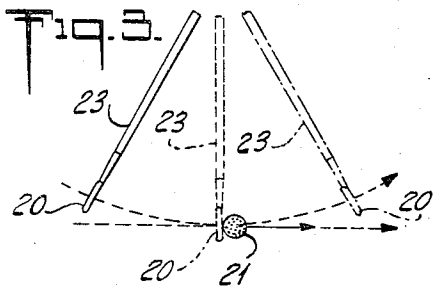


Fig. 4.

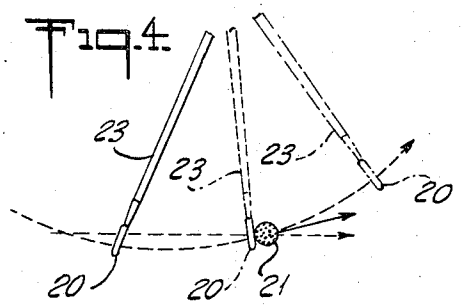


Fig. 5.

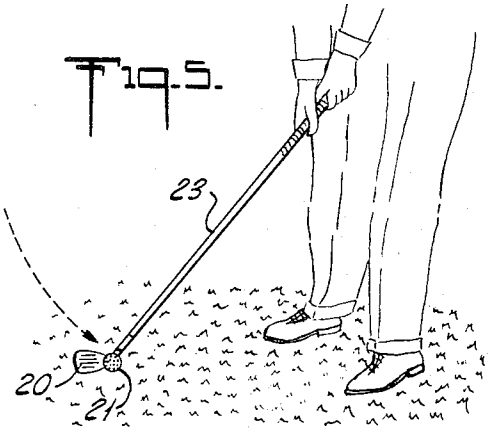
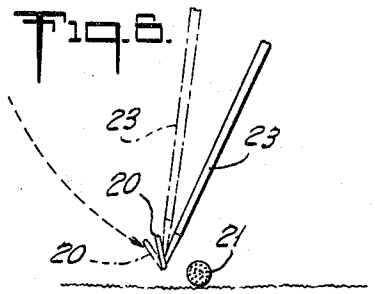


Fig. 6.



INVENTOR
JOHN STANKO

BY
Hopgood & Calimafde
ATTORNEYS

Sept. 26, 1967 J. A. STANKO 3,343,843

SIMULATED GOLFING TURF IN WHICH DIVOT DEPRESSIONS MAY BE PRODUCED AND STUDIED

Filed Oct. 26, 1964 2 Sheets-Sheet 2

Fig. 7.

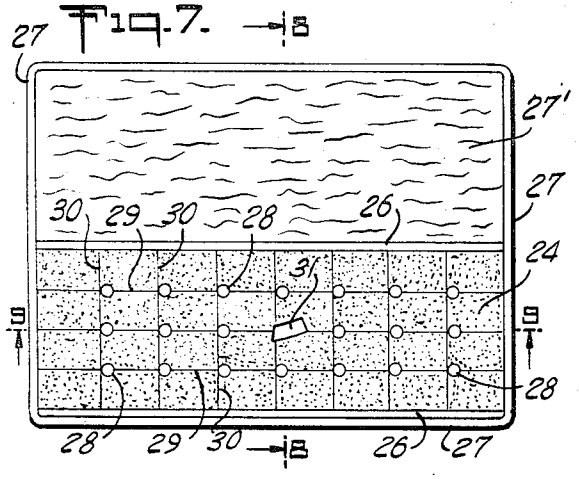


Fig. 8.

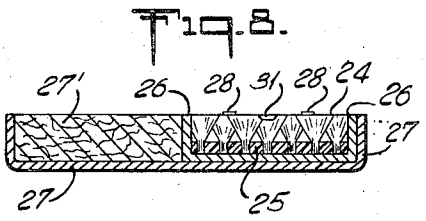


Fig. 9.

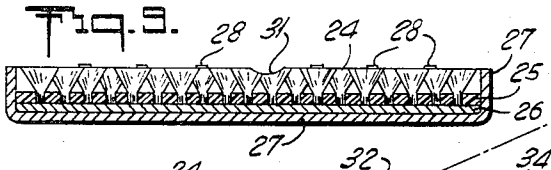


Fig. 10.

Fig. 11.

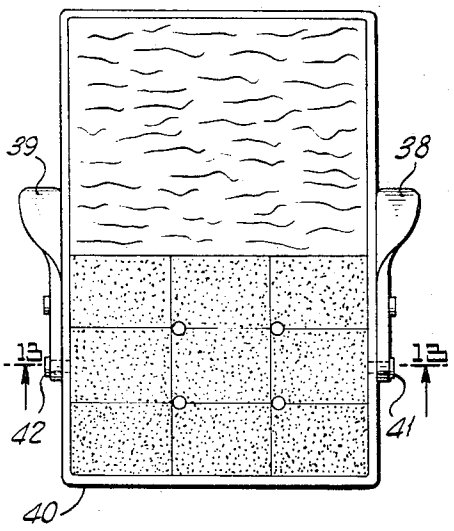


Fig. 12.

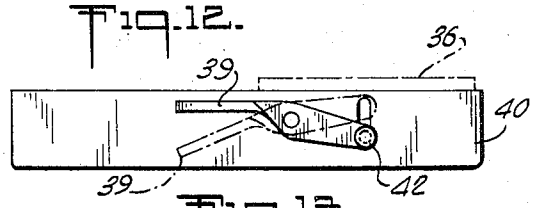


Fig. 13.

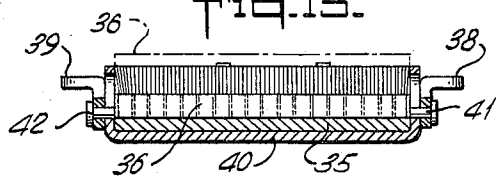
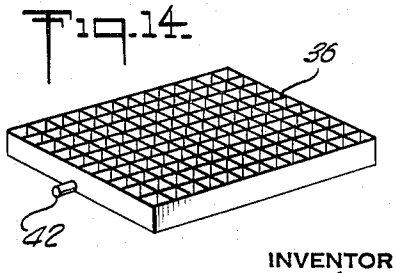


Fig. 14.



INVENTOR
JOHN STANKO

BY
Hopgood & Calimafde
ATTORNEYS

United States Patent Office 3,343,843
Patented Sept. 26, 1967

3,343,843

SIMULATED GOLFING TURF IN WHICH DIVOT DEPRESSIONS MAY BE PRODUCED AND STUDIED

John A. Stanko, 250 Garth Road,
Scarsdale, N.Y. 10583

Filed Oct. 26, 1964, Ser. No. 406,241
6 Claims. (Cl. 273—186)

This invention relates to a golf training device and more particularly to a self-training device with which a golfer may practice simulated iron shots in his living-room, detect any errors in the simulated iron shots, and identify the type of error to enable correction thereof.

In golf, there are two general types of clubs: (1) wooden clubs, which are used for long drives off the tee or off the fairway, and (2) iron clubs, which are used for the shorter approach shots to the green. The wooden clubs have a relatively large wooden head attached to a relatively long, flexible metal shaft. They are designed to strike the golf ball cleanly and pick it off the tee or the fairway without disturbing the ground under the ball. The iron clubs, however, are designed to strike the golf ball with a descending blow and then to bite into the ground beneath the ball. The descending blow imparts a backspin to the ball, thus enabling it to stop quickly after it lands without a long roll. This is a necessity in approach shots where the golfer's objective is to drop the ball on the green as close as possible to the cup. The fact that the iron clubs bite into the ground after striking the ball is an unavoidable consequence of the descending blow which is required for adequate backspin.

When the iron club bites into the ground after striking the ball, it scoops out a shallow depression due to the force of the swing and removes a small piece of turf, which is called a divot. The divot is thrown a few yards ahead of the golfer by the follow-through movement of the club, and golf etiquette requires that he pick it up and replace it in the depression from which it was scooped.

Golfers have found, however, that they can identify various types of errors in their iron shots by examining the depression from which the divot is scooped.

Accordingly, one object of this invention is to provide a golf training device with which golfers may practice simulated iron shots, detect any errors in the simulated iron shots, and identify the type of error to enable correction thereof.

Other objects and advantages of the invention will become apparent to those skilled in the art from the following description of several specific embodiments thereof, as illustrated in the attached drawings, in which:

FIG. 1 is a perspective view of an iron golf club striking a ball incorrectly with an open face;

FIG. 2 is a perspective view of an iron golf club striking a ball incorrectly with a closed face;

FIG. 3 is a plan view of an iron golf club striking a ball correctly;

FIG. 4 is a plan view of an iron golf club striking a ball incorrectly from the outside in;

FIG. 5 is a perspective view of an iron golf club striking a ball incorrectly with the shank rather than the face;

FIG. 6 is an elevation view of an iron golf club striking a ball incorrectly with a hooded face;

FIG. 7 is a plan view of one embodiment of this invention;

FIG. 8 is an expanded sectional view taken on the line 8—8 of FIG. 7;

FIG. 9 is an expanded sectional view taken on the line 9—9 of FIG. 7;

FIG. 10 is an elevation view of a second embodiment of this invention;

FIG. 11 is a plan view of a third embodiment of the invention;

FIG. 12 is an elevation view of the embodiment shown in FIG. 11;

FIG. 13 is an expanded sectional view taken on the line 13—13 of FIG. 11; and

FIG. 14 is an expanded perspective view of one part shown in FIG. 13.

Before describing the invention per se, it will be useful to first describe the most common errors in iron shots and explain how these errors can be detected and identified by examining the depression from which the divot is scooped. The most common errors are slicing, hooking, pushing, pulling, shanking, smothering, topping, skying, and sclaffing. A sliced ball curves to the right due to a clockwise spin which is induced by hitting the ball with an open club face, as shown in FIG. 1. When club face **20** strikes golf ball **21**, it should be perpendicular to the intended direction of travel, as indicated by dotted lines **22**. In this example, however, club face **20** has been opened by an inadvertent clockwise rotation about the axis of shaft **23**. Therefore, instead of striking the ball squarely, the club face will strike it with a slicing blow and give it a clockwise spin that will cause it to curve to the right. This fault can be detected by the orientation of the leading edge of the divotal depression scooped out under the ball. When the ball is hit squarely, the leading edge of the divotal depression will be perpendicular to the intended direction of travel, but when it is struck with an open face, the leading edge of the depression will be skewed in the clockwise direction with respect to the intended direction of travel, and the amount of skewing will indicate the magnitude of the slice.

A hooked ball is the converse of a sliced ball. When a ball is hooked, it curves to the left due to a counterclockwise spin which is induced by hitting the ball with a closed club face, as shown in FIG. 2. In this example, club face **20** has been closed by an inadvertent counterclockwise rotation about the axis of shaft **23**. When a ball is hooked, the leading edge of the divotal depression will be skewed in the counterclockwise direction with respect to the intended direction of travel, and the amount of skewing will indicate the magnitude of the hook.

"Pulling" is hitting the ball in a straight line to the left of its intended direction of travel, and "pushing" is hitting the ball in a straight line to the right of its intended direction of travel. These two errors are induced by a slightly open or closed club face and an incorrect horizontal arc in the swing. FIG. 3 is a plan view of the correct horizontal arc of the swing. The club head **20** should approach the ball **21** from the inside out and strike it so that the intended direction of travel is tangent to the horizontal arc of the swing. If the arc is over extended, however, as shown in FIG. 4, the club face will approach the ball from the outside in and drive it to the left of its intended direction of travel. If the club face is slightly closed, it will strike the ball squarely and pull it to the left without any hook or slice. The amount of pull will depend on the amount of displacement in the arc of the swing.

When a ball is pulled, the resulting divotal depression will be skewed to the left in its longitudinal orientation with respect to the intended direction of travel, and the leading edge of the depression will be slightly skewed in the counterclockwise direction due to the slightly closed face. It should be noted that hitting the ball from the outside in does not always simply pull the ball. If the club face is open instead of slightly closed, the result will be a pulled slice. This type of slice is particularly bad because the outside-in approach adds to the spin produced by the open face. Most slices are produced by the combination of an open face and an outside-in approach

to the ball. In terms of the dimensions of the divotal depression, this type of a slice would be detected by the fact that the leading edge of the depression indicates an open face and the longitudinal dimension indicates an outside-in approach.

"Pushing" is the converse of pulling. A pushed-ball is one that travels in a straight line to the right of its intended direction of travel. Pushing occurs when the arc of the swing is displaced forward and the club face is slightly open. Under these conditions, the club face strikes the ball while it is still moving from the inside out, before it has reached the tangent point, thereby driving the ball in a straight line to the right of its intended direction of travel. If the club face is open further than perpendicular to the actual line of flight, the ball will also be sliced, and if the club face is closed instead of open, the ball will be hooked. Pushing can be determined from the dimensions of the divotal depression by the converse of the above noted indications for determining pulling. The combination of slicing or hooking with pulling can be determined by the orientation of the leading edge of the divotal depression.

"Shanking" is hitting the ball with the shank of the club rather than the club face, as shown in FIG. 5. When the ball is shanked, the divotal depression will be displaced outwardly. "Smothering" is hitting the ball with a hooded club face, as shown in FIG. 6, where the dotted lines indicate the proper position of the club head just before it strikes the ball. When the club head is hooded, the natural loft of the club is diminished, which decreases the loft of the ball and reduces its back spin. In terms of the divotal depression, a hooded club head shows up as an unusual depth. "Topping" is striking the ball above its center. This error is revealed by the fact that it displaces the leading edge of the divotal depression forward of its normal position. "Skying" occurs when the ball is picked cleanly off the turf without taking any divot. "Sclaffing" is hitting the ground behind the ball instead of the ball. The indications for the last two errors will be apparent to those skilled in the art. It should be noted, however, that sclaffing is not always an error; it is the accepted technique for blasting the ball out of sand traps.

The above noted errors are caused by well known faults in the golfer's grip, stance, and swing. Once the errors have been detected and identified, they can be corrected by reference to any one of the many treatises which explain the specific faults of grip, stance and swing that produce each specific error. As the golfer practices his simulated iron shots, he can not only detect and identify his errors, but also take the necessary corrective actions and observe his progress as he goes along.

FIGS. 7, 8 and 9 illustrate one golf training device of this invention on which such simulated iron shots can be practiced. This embodiment contains a section of simulated turf **24** which is adapted to be deformed by the follow through motion of an iron golf club to accurately simulate the divotal depression that would be formed thereby in a section of real turf. In this particular embodiment, the simulated turf **24** is formed by a large number of small, bendable turf elements which are embedded in a base member **25**, in accordance with the prior art technique of fabricating brushes. The individual turf elements are gathered together in small bunches which are each secured in a corresponding hole in base member **25**, which is in turn secured to a casing member **26**. The turf elements can be made of copper wires, soft iron wires, plastic or any other suitable material; base member **25** can be made of wood or plastic, and casing member **26** can be made of sheet metal or plastic.

The simulated turf section **24** is removably supported in a rectangular, pan-shaped housing **27**, which also contains another section of simulated turf **27'** which is adapted to support a golfer wearing spiked golf shoes and to accurately simulate the feel of a section of real turf. Simulated turf **27'** is not essential in this invention, but is is preferable to more accurately duplicate the conditions encountered on a real golf course. This section of simulated turf can be made of cork, rubber, plastic, or any other suitable material.

The top of the first mentioned simulated turf section **24** is marked with a plurality of spaced, white circles **28** which represent golf balls, a plurality of corresponding longitudinal axis lines **29** which indicate the intended direction of travel for each ball, and a plurality of leading-edge marks **30** which indicate the correct location and orientation for the leading edge of the divotal depression when the simulated golf balls **28** are struck correctly by an iron club. The turf in between these marks is preferably painted grass-green to better resemble a section of real turf.

To practice simulated iron shots with the above described device, the golfer stands on simulated turf section **27'** and addresses himself to one of the simulated golf balls **28**. He then swings at the simulated ball as he would at a real ball, and the motion of his club bends the ends of the bendable turf elements into an accurate simulation of the divotal depression that would have been produced thereby in a section of real turf. The location and dimensions of this simulated divotal depression are then examined to detect and identify any errors in accordance with the general principles set forth previously. One illustrative divotal depression **31** is shown in FIGS. 7, 8 and 9. This particular divotal depression indicates that the golfer's swing was from the outside-in and that his club face was open at impact. These conditions would have produced a pulled-slice.

After detecting and identifying the errors in one simulated shot, the golfer addresses himself to a different simulated ball, and tries again, taking pains to correct the faults of grip, stance, and swing indicated by his previous simulated iron shot. By comparing the resulting divotal depression to the previous one, he can get a direct measure of his progress. This process is repeated until all of the simulated balls have been struck, at which time the golfer must either replace the simulated turf section **24** with a fresh one or to reconstitute the surface of the used turf section by straightening out the turf elements with a large comb, brush, or other suitable reconstituter. By proper selection of material for the turf elements, it will be possible to reconstitute the same simulated turf section several times before replacement becomes necessary.

FIG. 10 shows a modification of the above described embodiment in which a plastic practice ball **32** is attached to an eye **33** on the edge of housing **27** by a relatively thin, resilient cord **34** which is adapted to absorb the momentum of the ball when it is struck and return it to the ground, as shown by the dotted lines. With this modification, the plastic practice ball **32** is placed above each of the simulated balls in turn to give a more realistic simulation of actual golfing conditions. It will be understood, of course, that the resiliency and strength of cord **34** must be matched to the average momentum of practice ball **32** to stop the ball and return it to the ground with a minimum of back lash.

FIGS. 11, 12, 13 and 14, show another embodiment of the invention which contains an automatic re-constituting mechanism for straightening out the bendable turf elements after they have been bent by the golf club. As best shown in FIG. 13, the turf elements in this embodiment are uniformly embedded in a base **35** and interspersed between the openings of the honeycomb shaped reconstituting element **36**, which normally rests on base **35**, but which can be raised mechanically by a pair of foot pedals **38** annd **39** to straighten out the turf elements after they have been bent. Foot pedals **38** and **39** are journaled to respective sides of housing member **40**, and are also journaled to corresponding ears **41** and **42**, which are attached to reconstituting element **36** annd move up and down in housing **40** guided by slots formed therein, as

best shown in FIG. 12. In its extreme upward position, the top of reconstituting element **36** rises slightly above the level of the turf elements, as shown by the dotted lines in FIGS. 12 and 13. With this embodiment, the golfer can reconstitute the simulated turf section by merely stepping on foot pedals **38** and **39**, which drive reconstituting elements **36** upward through the turf elements and straighten them out. If necessary, the turf elements can be straightened out further with a hand comb, brush, or similar utensil.

From the foregoing description it will be apparent that this invention provides a golf training device with which golfers may practice simulated iron shots indoors, detect any errors in the simulated iron shots, and identify the type of error to enable correction thereof. And it should be understood that this invention is by no means limited to the specific embodiments disclosed herein. Many modifications can be made in the disclosed structure without departing from the basic teaching of this invention, which includes all modifications falling within the scope of the following claims.

What is claimed is:

1. A golf training device comprising a base member, a surface of closely-spaced elements projecting upwardly therefrom, the quantity and structural characteristics of said elements being such that said elements may be bent over in response to the movement of a golf club head therethrough, and will retain their bent over condition so that depressions simulating the various forms of divotal depressions that are produced in real turf by swung golf clubs may be produced and studied, and index means on the said device for determining swing characteristics of a golfer by noting relative thereto the location and orientation of depressions produced in said layer by said golfer.

2. The combination defined in claim **1** including a simulated golf ball marked on said surface.

3. The combination defined in claim **1** including a golf practice ball attached thereto by means of a resilient cord.

4. The combination defined in claim **1** including means for reconstituting said surface after a simulated divotal depression has been formed therein.

5. The combination defined in claim **4** wherein said reconstituting means comprises a movable honeycomb member within said upwardly projecting elements and means for moving said honeycomb member parallel to the direction of said elements.

6. The combination defined in claim **1** including a second surface adjacent said first mentioned surface, said second surface being adapted to support a golfer and having feel characteristics simulating a section of real turf.

References Cited

UNITED STATES PATENTS

1,531,128	3/1925	Paulson	273—196
3,018,109	1/1962	Starck	273—186
3,107,920	10/1963	Strunk	273—186
3,139,283	6/1964	Lester	273—195
3,143,350	8/1964	Lester	273—195

FOREIGN PATENTS

661,248	4/1963	Canada.
930,715	7/1963	Great Britain.

ANTON O. OECHSLE, *Primary Examiner.*

L. J. BOVASSO, *Assistant Examiner.*