

Aug. 27, 1963

J. W. CAMPBELL

3,101,948

GOLF SHOT INDICATING DEVICE FOR GOLF SHOT PRACTICE BALL

Filed May 19, 1961

2 Sheets-Sheet 1

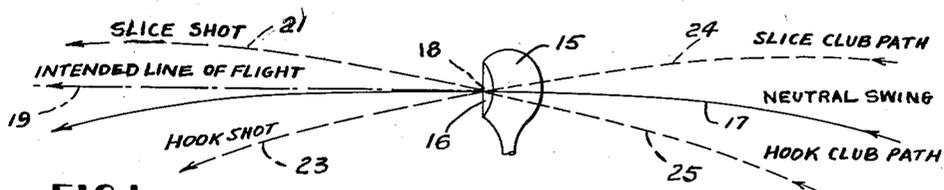


FIG 1

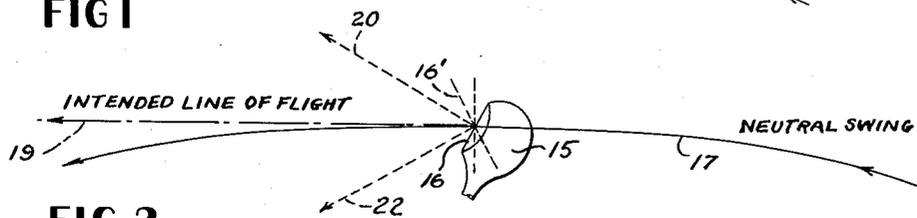


FIG 2

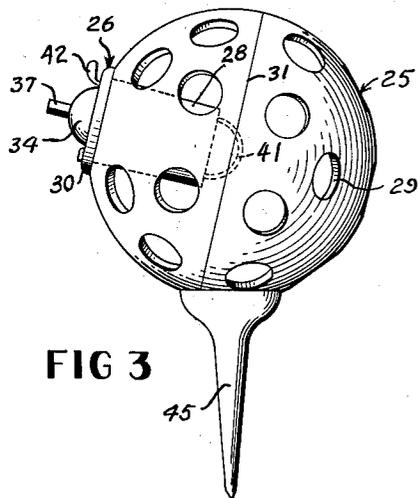


FIG 3

FIG 4

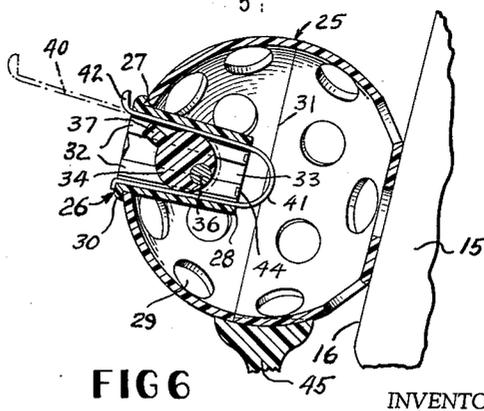
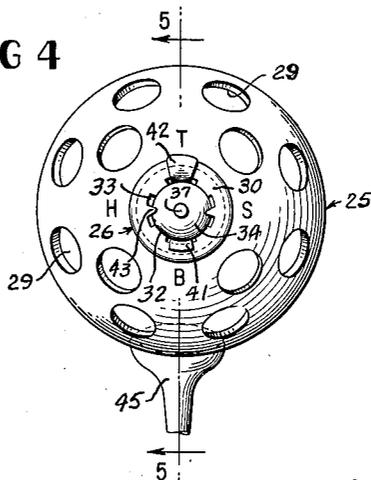
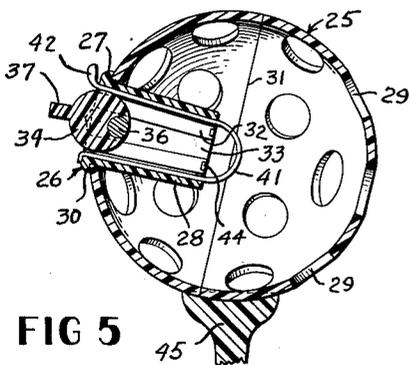


FIG 6

INVENTOR

JAMES W. CAMPBELL

FIG 5



BY *L. S. Saulsbury*

ATTORNEY

Aug. 27, 1963

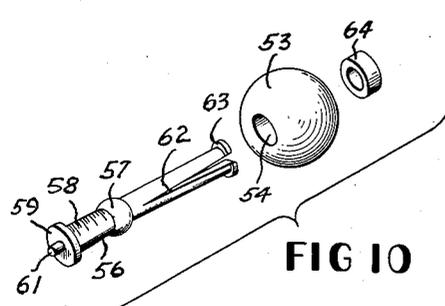
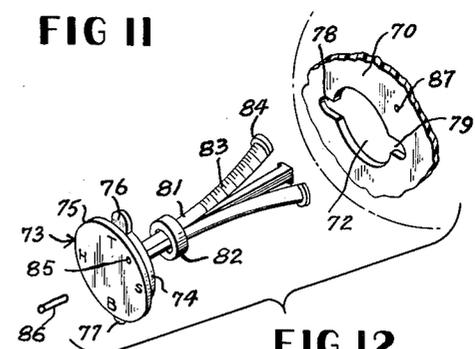
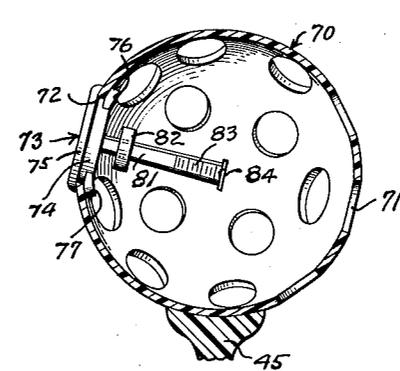
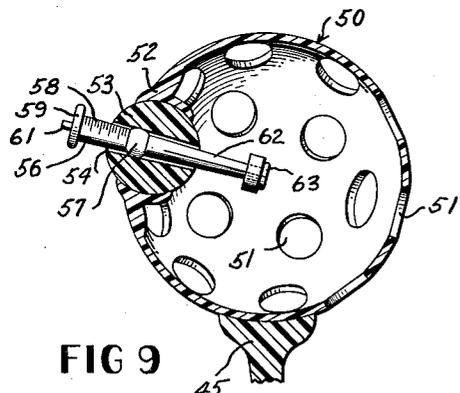
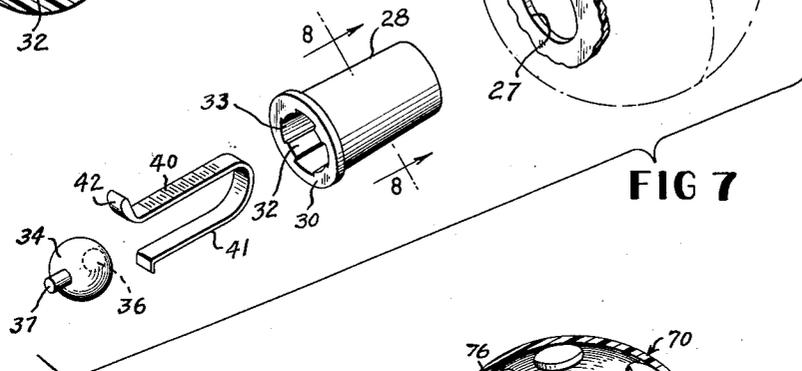
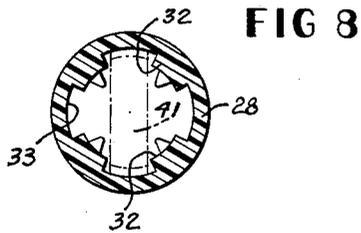
J. W. CAMPBELL

3,101,948

GOLF SHOT INDICATING DEVICE FOR GOLF SHOT PRACTICE BALL

Filed May 19, 1961

2 Sheets-Sheet 2



JAMES W. CAMPBELL, INVENTOR

BY *L. S. Saulsbury*

ATTORNEY

1

3,101,948

GOLF SHOT INDICATING DEVICE FOR GOLF SHOT PRACTICE BALL

James W. Campbell, 151 Lincoln Ave.,
Rockville Centre, N.Y.

Filed May 19, 1961, Ser. No. 111,205

8 Claims. (Cl. 273-183)

This invention relates to a golf practice ball and more particularly to a shot indicating device therefor.

It is the principal object of the present invention to provide a golf practice ball that will have an indicating device so that the player, after hitting the ball, may know whether the golf shot was hooked, sliced, back spun, top spun, heeled, toed, topped or skied and as well the distance the player could have expected from the standard golf ball.

It is another object of the invention to provide a golf practice ball visual indicating device to carry out the above object wherein the indicated results will be locked, trapped and protected from rebound forces which might tend to alter such results or findings upon the ball at the end of the flight striking and bounding upon the ground.

It is still another object of the invention to provide in a golf practice ball an indicating device with the above objects in mind in which the indications can be easily interpreted with a favorable degree of accuracy by observation of the played ball.

It is a further object of the invention to provide an indicating device for use in a golf practice ball which after the golf ball has been played and the indications observed, can be reset and reused and which will have the life of the practice ball itself.

Still further objects of the invention are to provide a golf shot indicating device for golf practice balls, having the above objects in mind, which is of simple construction, inexpensive to manufacture and assemble into the ball, has a minimum number of parts, adapted to lie fully within the confines of the practice ball, durable, made of the same material as the ball, light in weight, efficient and effective in use.

For a better understanding of the invention, reference may be had to the following detailed description taken in connection with the accompanying drawing, in which:

FIGURE 1 is an illustrative view showing the paths a club head can take for neutral, hook and slice shots, and the flight of the ball resulting respectively therefrom,

FIG. 2 is an illustrative view similar to FIG. 1 showing the neutral swing of the club head but because the striking face is angled upon striking the golf ball, a hook or slice shot is made to cause the ball to be forced away from its intended line of flight,

FIG. 3 is an elevational view of the golf practice ball set on a tee in the proper position with the indicating device extending in the direction of intended flight preparatory to being struck by a golf club and with the shot indicating device being constructed according to one form of the invention,

FIG. 4 is a front elevational view of the practice golf ball looking upon the forward end of the indicating device,

FIG. 5 is a longitudinal sectional view of the golf practice ball and indicating device, the indicating element of the device having been set in its zero position preparatory to the ball being struck by the golf club and as viewed on line 5-5 of FIG. 4,

FIG. 6 is a longitudinal sectional view similar to FIG. 5 showing the engagement of the golf club surface with the ball to compress it and with the indicating element

2

having been retracted thereby into its sleeve to make indication of the nature of the shot,

FIG. 7 is an exploded perspective view of the indicating device removed from the mounting hole of the golf practice ball,

FIG. 8 is an enlarged transverse sectional view of the indicating device sleeve as viewed on line 8-8 of FIG. 7,

FIG. 9 is a longitudinal sectional view of the golf practice ball having a golf shot indicating device constructed according to another form of the invention,

FIG. 10 is an exploded perspective view of the golf shot indicating device according to the form of the invention shown in FIG. 9,

FIG. 11 is a longitudinal sectional view of the golf ball having an indicating device constructed according to a still further form of the invention, and

FIG. 12 is an exploded perspective view of the golf shot indicating device according to the form of the invention shown in FIG. 11 and of a fragment of the golf practice ball bearing the opening within which the indicating device is disposed.

Referring now to the FIGURES 1 and 2, a study will be made of the effect that a golf club head 15 acting through its striking face 16 has upon a ball with proper or neutral swing of the club and with faulty hook spin or slice spin shots that are often made. If the club is properly swung along a neutral line as indicated at 17 and greeting the ball at ninety degrees to the target or line of flight the practice ball is engaged at 18 by the club striking face 16 and the ball will take an intended line of flight indicated at 19. This result will have been effected when the club 15 has been properly held and the neutral path for the club head has been followed, the ball will have moved out tangentially from the neutral arc and along the intended line of flight 19.

If the same neutral swing 17 is taken and the club head 15 is angled so that its striking face 16 extends as illustrated in FIG. 2, the golf ball will be directed in a direction 20 at the take off to the right at an angle of ninety degrees to striking face 16 and as well a slice spin to the right so that the ball will follow a slice shot path indicated generally at 21 in FIG. 1 and not along the intended line of flight 19. The player should have some way to determine what has happened with his swing and as to how much he has angled the club head to obtain this slice effect.

If on the other hand this neutral swing is still taken and the striking face 16 of the golf head 15 has engaged the golf ball at the angle 16', as illustrated in FIG. 2 the direction of the force at the take off upon striking the ball is at an angle of ninety degrees to the striking face at its position 16' and in a left direction as indicated at 22, FIG. 2 and as well a hook spin to the left. The golf ball will follow a hook shot path in a dotted line direction as indicated at 23 in FIG. 1. This result has been effected even though the swing made by the player was proper and neutral but the club has not been held in the hand so that the engagement with the ball by striking face to give it the intended line flight indicated at 19 in both FIGS. 1 and 2.

The same result of course is effected when the club is not properly swung and instead travels in arc removed therefrom as indicated at 24 and 25 in FIG. 1, in dotted lines. If the movement of the club takes the slice path indicated at 24 a slice spin shot will be effected and the ball will travel generally in a curve fashion along the line indicated at 21 while the club head follows through and along the line 23.

If, on the other hand the club head takes the hook path indicated in FIG. 1 along the line 25 and continues along line 21 the ball will take a hook spin shot direction along line 23. With these slice and hook arcs of move-

3

ment of the club head 15, these slice and hook spin shots of the ball will be effected even though the ball is struck by the striking face 16 on the same point as for the intended line of flight 19 and at right angles thereto. These paths 21 and 23 of the ball are in opposite directions to the club paths 24 and 25 because of the spin given to the ball due to the angled engagement of the striking face 16 of the club head 15 with the ball causing the ball to rotate across the club face to give spin and a curved trajectory to the right or left.

It can be seen that if the player can have some indication as to what he is doing in making these spoil shots, he can more readily improve his stance and handgrip on the club and wrist twist. The player may give the ball a vertical spin that will result in either a top spin or back spin. These spins have not been illustrated but are well known to golf players.

Referring now particularly to FIGS. 3 to 8, the first form of the invention will be described. A standard soft golf practice ball 25 molded in halves of polyethylene and joined together is used and altered only to a slight extent so as to accommodate an indicating device indicated generally at 26 by the provision of a slightly larger hole 27 than the usual lightening holes 29 provided therein to hold down the flight of the ball upon being struck.

The indicating device 26 comprises a slightly internally tapered sleeve 28 that is fitted into the enlarged hole 27 and prevented from sliding thereinto by its flange 30. This sleeve 28 is made secure to the practice ball 25 by its tight fit in the hole 27, by adhesive or any other suitable means so that it becomes practically an integral part of the ball. The sleeve 28 extends with its axis in a radial plane in alignment with the center of the ball. The ball is made of half sections as shown from line 31 extending about the diameter and the center of the ball will lie at an intermediate center point thereof. On the inner surface of the sleeve 28 are four circumferentially-spaced raised ribs 32 alternately with grooves 33. Within the sleeve 28 and having a tight friction fit with the ribs 32 is a spherical indicating ball 34 with a weight 36 in its bottom or projecting down an appropriate distance to alter downward its center of gravity and a pointer 37 extending outwardly from its top face. This spherical indicating ball 34 is set in the position shown in FIG. 5 so that the centers of the ball 34, weight and the pointer of the ball all lie in the center axis of the sleeve 28 and of the ball 25.

A rest sling band 41 is disposed in one pair of opposing grooves 33 in the sleeve 28 and has distance tape measure indications 40 provided on one side of the sling to indicate the distance to which the struck ball would have traveled. An enlarged handle portion 42 is provided on the tape measure portion of the sling band and when the indicating ball has been pulled out from the struck position shown in FIG. 6 to its initial or starting position illustrated in FIG. 3, a reading is taken across the top of the flange 30 of the sleeve 28 with tape measure indications 40 and the distance determined to which a standard golf ball would have traveled. The calibrations on the tape measure portion of the sling may be calibrated in feet or yards and in proportion of the amount of travel of this practice ball for the corresponding travel which would have been made with a standard hard golf ball. Once the sling band 41 has been pulled out to reset the indicating ball 34 and this is done in the manner illustrated in phantom lines, FIG. 6, the sling band 41 is returned to the position shown in FIG. 5 and the indicating ball 34 is made ready for another golf shot. To keep the indicating ball 34 within its sleeve 28 and against being dropped from its forward and rearward ends, radially inwardly-extending tabs 43 and 44 may be provided.

If the ball 25 had been struck at an angle other than for it to pass along the intended line 19 of flight, the indicating ball 34 will have been turned so that its

4

pointer 37 will give an indication as to the direction and extent of the angle to which the practice ball has been sliced or hooked. With the pointer 37 extending directly upwardly as in FIG. 6 the golf practice ball would have been given a back spin, and by observing the position of the pointer the player can see what has happened and in his next stroke rectify the mistake. To have a perfect shot the pointer 37 of the indicating ball 34 should have remained in the axis of the sleeve as shown in FIG. 5 while the ball is retracted.

As the practice ball 25 is struck with great force as illustrated in FIG. 6, the indicating ball 34 is immediately repositioned, the tendency being for the practice ball 25 and sleeve 28 to override the indicating ball 34 and remain there as the ball 25 has landed and when picked up the player is given a true indication of the kind of shot which has been made.

The practice ball 25 has printed on it markings H, S, T, B, that will tell the player what has happened in making the shot. These indications represent respectively hook, slice, top and back spin shots. If the pointer 37 on the indicating ball 34 extends between the T and the H as may be the case in FIG. 6, the golf ball 25 will have not only been given a top spin but a hook spin shot provided the direction of the shot has been on target. If the pointer 37 extends as may be the case in FIG. 6 between the T and the S there would be a slice spin shot as well as a top spin. On the other hand if the pointer 37 on the indication ball 34 should extend down toward the B the ball would have been hit to give it a back spin. If the pointer 37 should lie down between the B and the H not only would there have been a back spin but a hook spin shot. If the ball were struck so that the pointer 37 would lie between the B and the S, there would have been a slice spin shot as well as a back spin.

The practice ball 25 is supported upon the golf ball tee 45 as shown in the figures in the usual manner so that the T indication lying upright with the B indication lying immediately thereunder and the axis of the indicating device inclined upwardly to match the pitch of the upwardly and rearwardly inclined striking face 16 of the club head 15 as best observed in FIG. 3. Once the golf ball has been struck a permanent indication will have been made on the ball itself so that the player upon picking up the ball will readily have a complete account of what happened upon his making the shot.

Upon the practice ball 25 being struck by the golf club head, the impact compresses and deforms the golf ball because the counter force of the residual inertia of the ball resists the striking force of the club and all that can move is the sleeve 28 over the indicating ball 34. While the club head is still in contact with the ball 25, there is an elastic snap back from the deformed state of the practice ball 25 to return it to its initial spherical form. During this time the elastic release force that has been built up works against the resistance of the club head 15 and in effect bounces the ball away from the striking face 16 of the club head 15. Thus the ball has passed through a compression and a release phase. When the ball ends its flight it may strike other objects and bounce along the ground but the friction between the indicating ball 34 and its sleeve 28 is such that the indicating ball 34 will not release from the tapered interior of the sleeve 28.

The ball is placed on the tee so that the axial line to the indicating device is angled about fourteen degrees of inclination with respect to the horizontal ground surface. This is made because there is a slight upward bevel of the golf club driver face. The other clubs having different angles can be similarly compensated for by varying the angle of the axial line of the indicating device with the horizontal ground surface. If a perfect shot has been made the weighted indicating ball 34 will simply move along the internal ribs or runners 32 of the sleeve 28 which are tapered approximately twenty-three-thou-

5

sandths of an inch to length of one half inch and converging inwardly toward the center of the practice golf ball. The tapered runners create a resistance to the movement of the indicating ball 34 plus the friction due to the nature of the plastic material being used. The indicating device is preferably made of the same material as the ball, that is polyethylene. The indicating ball 34 becomes more and more wedged as it moves toward the center of the ball 25 from the lateral forces against the runner and until the resistance is so set up to stop its inward progress. This is effected as the ball is compressed and the distance which it moves has been proportioned to the amount of force with which the ball has been struck, upon the release phase of the ball tending to be bounced away from the striking face of the club and the ball 25 jumps back to its former shape. Since the force on the release is not greater than the compressing force due to losses in efficiency of the initial or striking action, the indicating ball 34 is securely frictionally held in place within its sleeve and will also stay in place when the ball strikes the ground. It is also true that the ground engaging and rebounding forces are not greater than the striking force to displace the ball from the extent to which it has been forced between the tapered runners of the sleeve 28 and this is particularly true with rebound force results from a lateral hitting of the ball with the ground object. The golf player upon retrieving the ball will notice the location of the pointer 37 of the indicating ball 34 so that he can, with the knowledge of the hit direction, determine by observing the letters whether there has been a hook, slice, top spin or a back spin shot. By grasping the handle 42 of the sling band 41 and pulling it outwardly until the band meets the resistance of the ball he may then read the distance from the measured tape indications 40 with reference to the top of the flange 30 of the sleeve 28. After this he will reset the ball by pulling with greater force upon the handle 42 until the ball comes up against the stop projections 43 extending radially inwardly from the flange to check the outward movement of the spherical indicating ball 34 and thereby setting the ball to its initial position. The sling band 41 is thereafter returned inwardly through the opening 27 into the ball 25 and the pointer 37 is centered by grasping it and setting it in axial alignment with the center of the sleeve 28 and the ball 25. If the shot has not been perfect the indicating ball 34 will have rolled slightly and its weight 36 will have tended to continue its movement to a position at right angles to the golf club face, the resultant indication thus cannot only indicate the distance the ball would have been struck but also shows the path direction of the golf ball from the pointer 37 from which the regular golf ball would have departed from the intended line of flight 19. The amount of departure of the pointer 37 through five degrees would be slight, medium, to ten degrees, and hard over to fifteen degrees or beyond. On the next shot the player can be careful to make the necessary correction to make the perfect shot.

Referring now to the form of the invention shown in FIGS. 9 and 10, 50 represents a practice golf ball having lightening holes 51 therein and which is provided with an enlarged socket formation 52 into which an indicating ball 53 is frictionally tightly fitted therein but under a heavy striking force may turn or roll in the socket. Both the golf ball 50 and the indicating ball 53 are formed of plastic, preferably polyethylene to give a right friction fit and yet be of light weight.

The indicating ball 53 has a slightly tapered hole 54 extending through from the outer side of the ball to the inner side and in which there is contained a tapered distance indicating element 56. Throughout the length of the indicating element 56, the diametrical size is slightly less than the converging diameter of the hole 54 except for an enlarged formation 57 that tightly and frictionally engages and wedges the wall of the opening

6

54. A measuring scale 58 is provided on the distance indicating element 56 by which a reading can be taken with reference to the outer end of the opening 54 of the angle indicating ball 53. The rounded enlargement 57 meets with a tapering or graded wedge like resistance as it is forced inwardly through the opening 54 of the ball 53 upon the club head 15 striking the practice ball to compress it. A stop flange formation 59 is provided on the outer end of the element 56 and extending beyond that is an angle indicating pointer 61. The inner end of the tapered indicating element 56 is split throughout a substantial distance thereof to provide a split shank portion 62 and has an end stop enlargement 63 which upon being joined defines a circular flange stop. Slidable upon the split end of the indicating element 56 inwardly of the round enlargement 57 thereon is an annular weight 64 which can slide inwardly to pull the element 56 into the opening 54 in the ball 53. The split end of the element 56 facilitates the assembly of the same within the opening 54 of the angle indicating ball 53 and the assembly of the annular weight 64 thereonto.

The golf practice ball 50 is placed upon the golf tee 45 so that the indicating element 56 and ball axis run perpendicular to the club striking face 16 of the club head 15. The weight 64 will tend to remain at right angles to the club face even though the engagement of the club face with the ball is at an angle as with a hook or slice shot. The indicating ball 53 will rotate in the socket 52 to accommodate the action of the weight 64 and is locked in place by the wedging action of the enlargement 57 in the opening 54 as the indicating element 56 moves downwardly toward the center of the practice ball. A reading is taken on the scale 56 to determine the distance to which the standard golf ball would have traveled from the player. To reset the indicating ball 53, and the distance indicating element 56, the element 56 is grasped by its flange and pulled outwardly to even the outer end of the enlargement 57 with the outer end of the hole 54 in the ball 53. In so doing the weight 64 is drawn toward the inner end of the hole 54 of the ball 53 and will be reset along the split shank portion 62 of the element 56. At the same time the ball 53 will be angled so that its axis through its opening is put in alignment with the center of the ball. Shot indications may be made on the surface of the ball 50 as shown in FIG. 4 and observance of the location of the pointer 61 between the indications as above described will permit the player to observe as to the amount of hook, slice, top spin or back spin play of the ball or a combination of these resulting from the shot. The player can make adjustment of his stance or handgrip positions to rectify the error on the next play shot.

Referring now to the form of the invention shown in FIGS. 11 and 12, 70 represents a golf practice ball having lightening holes 71 and an enlarged hole 72 for receiving an indicating device 73. This indicating device 73 comprises a head 74 adapted to tightly fit the enlarged hole 72 with a flanged top face 75 to hold the indicating device 73 against inward displacement and oppositely disposed lugs 76 and 77 on the inner part of the head 75 projecting beyond the inner edge of the hole 72 and against the inner face of the ball 70. The lugs 76 and 77 on assembly pass through notches 78 and 79 in the opposite sides of the hole 72 and the device is turned out of registry therewith to lock the device 73 to the ball 70.

A flexible spit shank 81 extends inwardly from the head 74 toward the center of the ball 70 and slidable upon this shank is a weight ring 82 that can be pulled rearwardly over the split shank to close the parts thereof and on one of the parts of which there is a scale reading 83 to determine the distance to which the standard golf ball would have been driven. Flange portions 84 prevent the weight from leaving the shank 81. The shank 81 is made of flexible plastic material integral with the head 74

7

and will be angularly flexed from the head at the time of the striking of the ball in a direction so that the hook, slice, top and bottom spins can be determined. The weight 82 will slide inwardly along the shank 81 closing the shank parts and onto the scale 83 and at the same time the shank will angle itself to one side of the head 74 or another depending upon the type of shot that has been made upon the practice ball 70. The ball 70 is lined upon the golf tee 45 in the same manner as above described for the golf balls 25 and 50 and the striking force causes the movement of the weight 82 and the angle bending of the shank 81.

To reset the indicating device 73 the head 74 may be turned out of the ball hole 72 to release the lug projections 76 and 77 through the notches 78 and 79 of the enlarged hole 72 so that the weight 82 can be pushed onto the shank toward the head 74 and the device returned to the ball 70. The indicating device 73 may be maintained in the ball by extending a small pin 86 through a small hole 85 in the head 73 and through a hole 87 in the ball 70. With this, the weight ring 82 and shank 81 can be reset by an implement extended through one of the lightening holes 71.

It should now be apparent that there has been provided in all three of the forms of the invention above described an indicating device by which the type of the shot as to being a hook, slice, top and back spin will be indicated to the player upon his observation of the positions of the indicating elements of the device as well as the distance to which a standard golf ball would have been driven.

It should be apparent that the parts of the indicating device may be formed of the same materials as the golf ball except for the weight which may be of metal, such as lead or brass, and that there is little difficulty in the assembly of the device into the ball and when done so that the device becomes virtually a part of the ball.

While various changes may be made in the detailed construction, it shall be understood that such changes shall be within the spirit and scope of the present invention as defined by the appended claims.

What is claimed is:

1. In combination with a golf ball, an indicating device disposed within said ball, said device including:

- (a) a displaceable mass;
- (b) guide means frictionally retaining said mass, said mass adapted to be axially and transversely displaced relative to a reference position by the impact of a golf club upon said ball, said mass being initially disposed by said guide means diametrically remote from an intended point of impact, thence displaced towards the actual point of impact; and
- (c) means adapted to indicate said axial and transverse displacement relative to said reference position, said axial displacement being a function of the force of the impact, said transverse displacement being a function of the angular displacement of the golf club at the time of impact relative to the intended point of impact.

2. A device as in claim 1, wherein said guide means

8

includes an internally tapered sleeve, said mass being frictionally movable within said sleeve.

3. A device as in claim 2, wherein said sleeve is formed with alternate longitudinally extending ribs and grooves therein, said mass frictionally engaging said ribs; and a sling band extending inwardly through opposing grooves and engageable with said mass and adapted to reset said mass after displacement of said mass within said sleeve.

4. A device as in claim 3, wherein said sling band is provided with a finger grip portion extending from said sleeve, said sling band having indicia formed thereon adapted to determine the longitudinal displacement of said mass relative to said sleeve, said displacement being a function of the force of impact of a golf club upon said ball; said sleeve being formed with stop means for limiting the displacement of said mass within the sleeve.

5. A device as in claim 1, wherein said guide means includes an internally tapered sleeve, said mass being frictionally movable within said sleeve;

wherein said mass comprises a globular member having a weighted slug imbedded therein removed from the center of said globular member;

wherein said means to indicate axial displacement comprises a sling band extending inwardly in said tapered sleeve and engageable with said globular element, said sling band having indicia formed thereon adapted to indicate the displacement of said globular element relative to said sleeve, said sling band being provided with a finger grip portion extending from said sleeve; and

wherein said means for measuring lateral displacement comprises (a) a pointer formed on said globular member diametrically opposite said weighted slug whereby lateral displacement of said weighted slug will cause corresponding displacement of said pointer, and (b) indicia formed on the surface of said golf ball proximate to said sleeve, said indicia in conjunction with said pointer being adapted to indicate the direction and extent of said lateral displacement.

6. The combination of claim 1 wherein said means adapted to indicate said axial and transverse displacement comprises an inwardly extending deflectable shank and a weight axially adjustable on said shank upon the golf ball being struck, said shank being deflectable by said weight and adapted to retain its deflection against release and rebound forces of the ball.

7. The combination as described in claim 6, and said shank having measure indications and said weight adapted to travel over said measure indications to indicate the distance at which a standard golf ball would have traveled as well as the shank being deflectable to indicate the angular deflection of the struck ball.

8. The combination as described in claim 6, and said indicating device including a head from which said shank extends and means for releasably securing said head to the exterior of said golf ball.

References Cited in the file of this patent

UNITED STATES PATENTS

1,620,290	Rubin	Mar. 8, 1927
2,953,922	Bonkowski et al.	Sept. 27, 1960