Dec. 22, 1925. 1,566,775

G. E. SCHENK

GOLF STROKE RECORDING APPARATUS

Filed Feb. 25, 1924 2 Sheets-Sheet 1

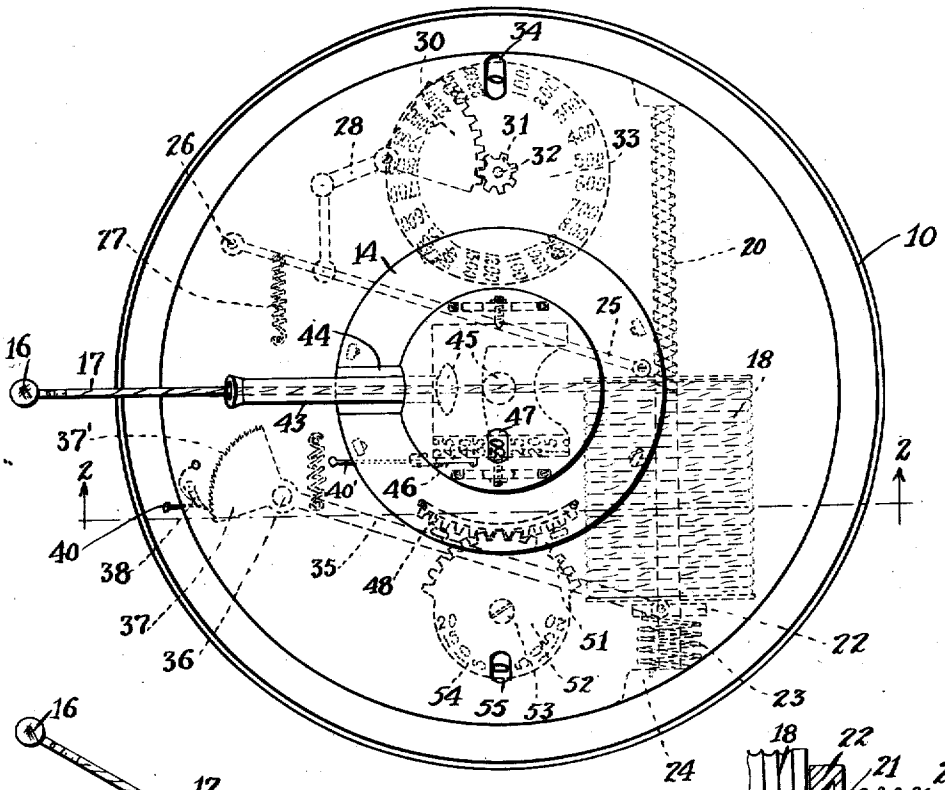


fig 1

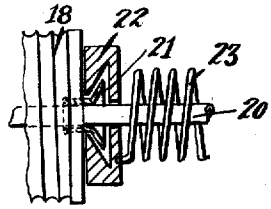


fig4

fig2

INVENTOR

George E. Schenk

BY

ATTORNEY

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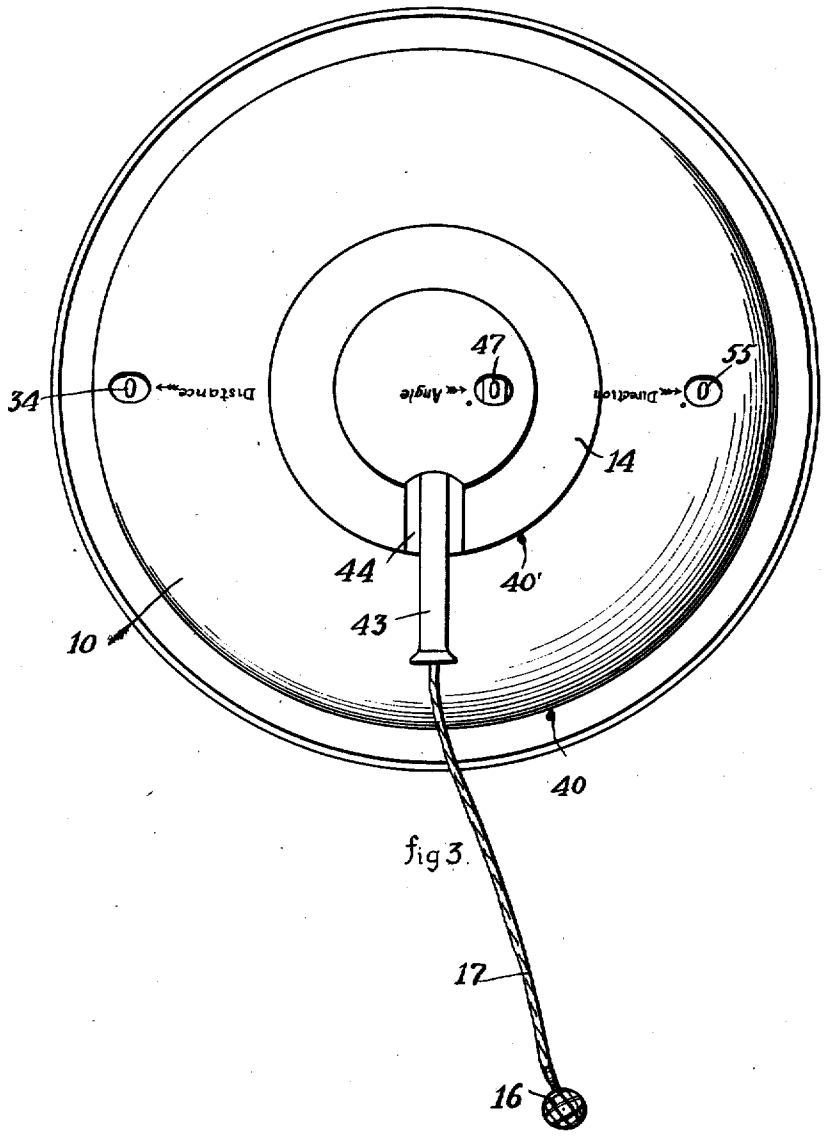


fig 3.

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UNITED STATES PATENT OFFICE.

GEORGE E. SCHENK, OF BROOKLYN, NEW YORK.

GOLF-STROKE-RECORDING APPARATUS.

Application filed February 25, 1924. Serial No. 694,901.

To all whom it may concern:

Be it known that I, GEORGE E. SCHENK, a citizen of the United States, residing in the borough of Brooklyn, county of Kings, city and State of New York, have invented certain new and useful Improvements in Golf-Stroke-Recording Apparatus, of which the following is a specification.

This invention relates to improvements in golf stroke recording apparatus, and more particularly relates to that type of apparatus which includes a captive projectile, preferably simulating a golf ball, which is adapted to be projected in flight by being struck, as with a golf club used in the usual way, and the principal aim of my invention is to provide such an apparatus with mechanism whereby, whenever the ball is projected, the distance, angle of departure, and angle of inclination, incident to the flight of the ball, is recorded, either actually or relatively to the actual, and corresponding indicia is presented to view.

Another object of my invention is to provide a golf stroke recording apparatus which is simple, durable and inexpensive in construction, positive in operation, and to provide simple and durable mechanism which registers faithfully and accurately the angles of inclination and departure and the relative distances of the flights of the captive ball when projected; and to provide simple and durable mechanism which presents, faithfully and accurately, visible indications of such angles of inclination and departure and distances of the flights of the captive ball.

A further object of my invention is to provide an apparatus suitable for use in practicing golf strokes and whereby faults, such as "topping", "hooking" or "slicing" and the like, are made apparent for correction, and an apparatus which is an aid in improving a person's style of play, and an apparatus which renders the practice of golf strokes more interesting.

Other objects of my invention will be in part obvious and in part pointed out hereinafter.

In the accompanying drawings, which are to be taken as part of the specification and in which I have shown one possible form or embodiment of my invention, Fig. 1 is a plan view of a stroke recording device embodying my invention, the operative mechanism thereof being shown partly in dotted lines; Fig. 2 is a section along the lines 2—2 of Fig. 1; Fig. 3 is a plan view, as in Fig. 1, showing the visible distance and direction indicating features; and Fig. 4 is a detail view.

Referring now to the drawings, wherein corresponding reference characters denote corresponding parts, the numeral 10 designates a casing, preferably circular in form, having a circular opening 11 spanned by a spider in the upper portion thereof. Surrounding the opening and spider is a flange portion 12. A turret 14 is mounted above the casing 10 and is positioned concentric with the circular opening 11 therein. The base of the turret 14 rests on rollers 13 which are rotatably secured to the flange 12, the turret being freely rotatable, and being held concentric on the casing 10 by the stub shaft 15 which extends through the spider 11′ in the opening 11 of the casing.

A projectile 16, preferably about the size, shape and weight of a golf ball, is held captive by a rope or cable 17 which extends through the turret 14 and is wound on a drum 18 contained in the casing 10. This drum is mounted on a fixed shaft 20 as shown, which, for a portion of its length, has a helical groove of a predetermined pitch cut therein. The drum 18 has at one end thereof a coupling member 21 associated with a collar 22 and having preferably a loose dovetailed connection therewith, whereby the drum 18 may rotate independently of the collar 22, as clearly shown in Fig. 4. A spring 23 of a predetermined resiliency has one end fastened to the collar 22 and the other end held in a lug portion 24 at the base of the casing 10, and it is thus seen that the drum 18 is restrained against longitudinal travel on the shaft 20 by means of the spring 23 with its predetermined resiliency.

When the ball 16 is struck, the travel thereof will unwind the cable 17 from the drum 18, which, by its rotation and coaction with the threaded shaft 20, is advanced transversely of the casing 10, the cable 17 unwinding at substantially the point relative to the casing at all times. Pivotally joined to the other end of the drum 18 is an arm 25 which is pivoted, as at 26, to the base of the casing 10, and which is held normally in lowermost position corresponding to the wound position of the drum 18 by a spring 27. A bell crank lever

28 at one end has a connection with this arm 25, and at its other end is connected to a toothed segment 30, the toothed portion of which meshes with a pinion 31, fastened on a pin 32. A dial plate 33, rotatable with the pin 32, has inscribed on its outermost peripheral face the numbers indicating distances in yards calibrated in conjunction with the resiliency of the spring 23 and the pitch of the threads of the shaft 20. It is thus evident that when the ball is struck and the cable unwinds from the drum 18 the latter travels along the shaft 20 and transversely across the casing. The drum carries with it the arm 25 and serves to operate the bell crank lever 28 and the tooth segment 30 to rotate the disk 33 through the pinion 31 and pin 32. The resultant rotation of the disk 33, indicating the relative distance of travel of the ball, is clearly apparent through an opening 34 in the casing.

Connected to the collar 22 is an arm 35 which is fulcrumed, as at 36, and which has at one end an enlarged segment portion 37 carrying ratchet teeth 37'. A spring pressed pawl 38 is resiliently held against the ratchet teeth of the segment 37, and as the rope 17 is unwound from the drum 18, the arm 35, traveling with the drum, is thereby locked in its furthermost pivotal position corresponding to the greatest distance of flight of the ball 16. A pin 40 connected with the pawl is accessible on the outside of the casing so that a person by pulling the pin may disengage the pawl from the ratchet, whereupon the apparatus is restored to original position by the action of spring 23.

Mounted in the turret 14 on the bracket arms 41 is a hollow cylinder 42 having a tubular extension 43 projecting through an opening 44 in the turret wall. The cable 17 extends from the drum 18 through openings 45 in the cylinder 42 and through the tubular extension 43 thereof. At one end of the cylinder 42, and arranged circumferentially thereon, are the numerical markings 46, representing degrees of annular rotation of the cylinder, preferably begun from a zero point, which would correspond to the horizontal, and arranged to read progressively as the cylinder is rotated about its pivotal mounting in the arms 41. These readings may be seen through an opening 47 in the upper portion of the turret surface. It will thus be evident that as the ball is hit and the cable unwound from the drum the angle of inclination of the flight of the ball will be determined by the rotation of the cylinder 42 in a vertical plane, as shown by the angular indicating markings 46.

A ratcheted arc 39 is fastened to one end of the cylinder 42, as by means of set screws or the like, and there is mounted on the base of the turret for coaction therewith a resilient pawl 39'. Thus, as the cylinder 42 and extension 43 is inclined, the pawl 39' cooperates with the ratchet to lock the cylinder at the greatest angle of rotation attained in the course of flight of the driven ball. A pin 40' accessible from the exterior of the casing is provided whereby the pawl may be released, whereupon the cylinder 42, through the offset weight of the extension 43, swings back into normal horizontal position.

As hereinbefore stated, the turret 14 is rotatable on the casing 10. Extending downwardly from the base of the turret 14 into the casing is a geared segment 48 supported and held rigid with the turret by arms 50. Meshing with this segment 48 are the teeth 51 of a rotatable disk 52 which is pivotally mounted on a stud or screw 53. Numerical markings 54 are arranged on the periphery of this disk and preferably progressing from a zero point both to the left and right thereof. It will thus be seen that the angle of flight of the ball, either to the left or right of the straight-ahead line in which the ball should be driven, may be readily determined, as any angular deflection thereof will be transmitted by the cable through the tubular portion 43 to rotate the turret 14 and toothed segment 48, which deflection is transmitted to the disk 54, and the markings read through the opening 55 in the casing as shown. The turret remains angularly displaced until returned to original position by the player in preparation for another stroke.

From the above, it will be evident that the apparatus disclosed provides a means of determining the direction, inclination and distance in flight of the captive projectile, and that such apparatus is especially applicable in the practice of accuracy for golf players.

Inasmuch as many changes could be made in the above construction and many apparently widely different embodiments of my invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense. It is also to be understood that the language used in the following claims is intended to cover all of the generic and specific features of the invention herein described and all statements of the scope of the invention which, as a matter of language, may be said to fall therebetween.

What I claim is:—

1. In an apparatus of the character described, in combination, a base, a fixed shaft, a drum mounted for rotation on said shaft, means for shifting the drum longitudinally on said shaft as the drum rotates, spring means yieldingly holding the drum at one end of the shaft, a cable wound on said drum, and a captive ball attached to said cable, said ball being projectible, as by being

stroked with a golf club, whereby upon projection of the ball the cable unwinds from the drum and the drum rotates and advances on said shaft against the tension of said spring means.

2. In an apparatus of the character described, in combination, a base, a fixed shaft, a drum mounted for rotation on said shaft, means for shifting the drum longitudinally on said shaft as the drum rotates, spring means yieldingly holding the drum at one end of the shaft, a cable wound on said drum, and a captive ball attached to said cable, said ball being projectible, as by being stroked with a golf club, whereby upon projection of the ball the cable unwinds from the drum and the drum rotates and advances on said shaft against the tension of said spring means, and means including a ratchet mechanism connected with the drum for releasably holding the drum in its position of advancement on said shaft.

3. In an apparatus of the character described, in combination, a base, a fixed shaft, a drum mounted for rotation on said shaft, means for shifting the drum longitudinally on said shaft as the drum rotates, spring means yieldably holding the drum at one end of the shaft, a cable wound on said drum, and a captive ball attached to said cable, said ball being projectible, as by being stroked with a golf club, whereby upon projection of the ball the cable unwinds from the drum and the drum rotates and advances on said shaft against the tension of said spring means, and indicating mechanism movable with said drum and displaying indicia in accordance with the position of advancement of the drum on said shaft.

4. In an apparatus of the character described, in combination, a base, a fixed shaft, a drum mounted for rotation on said shaft, means for shifting the drum longitudinally on said shaft as the drum rotates, spring means yieldingly holding the drum at one end of the shaft, a cable wound on said drum, and a captive ball attached to said cable, said ball being projectible, as by being stroked with a golf club, whereby upon projection of the ball the cable unwinds from the drum and the drum rotates and advances on said shaft against the tension of said spring means, indicating mechanism movable with said drum and displaying indicia in accordance with the position of advancement of the drum on said shaft, and means including a ratchet mechanism connected with the drum for releasably holding the drum in its position of advancement on said shaft.

5. In an apparatus of the character described, in combination, a base, a fixed shaft, a drum mounted for rotation on said shaft, means for shifting the drum longitudinally on said shaft as the drum rotates, said means including a helical groove on said shaft and a projection on said drum engaging in said groove, spring means yieldingly holding the drum at one end of the shaft, a cable wound on said drum, and a captive ball attached to said cable, said ball being projectible, as by being stroked with a golf club, whereby upon projection of the ball the cable unwinds from the drum and the drum rotates and advances on said shaft against the tension of said spring means.

6. In an apparatus of the character described, in combination, a base, a fixed shaft, a drum mounted for rotation on said shaft, means for shifting the drum longitudinally on said shaft as the drum rotates, spring means yieldingly holding the drum at one end of the shaft, said means including a collar swiveled to the rear end of said drum and a spring secured at one end to said collar and secured at its other end to said base, a cable wound on said drum, and a captive ball attached to said cable, said ball being projectible, as by being stroked with a golf club, whereby upon projection of the ball the cable unwinds from the drum and the drum rotates and advances on said shaft against the tension of said spring means.

7. In an apparatus of the character described, in combination, a base, a fixed shaft, a drum mounted for rotation on said shaft, means for shifting the drum longitudinally on said shaft as the drum rotates, spring means yieldingly holding the drum at one end of the shaft, a cable wound on said drum, and a captive ball attached to said cable, said ball being projectible, as by being stroked with a golf club, whereby upon projection of the ball the cable unwinds from the drum and the drum rotates and advances on said shaft against the tension of said spring means, and means for releasably holding said drum in its position of advancement on said shaft, said means including an arm pivoted to said base, one end of said arm being connected to said drum for translatory movement therewith, the other end of said arm having an arcuate ratchet, and a pawl pivoted to said base releasably coacting with said ratchet.

8. In an apparatus of the character described, in combination, a base, a fixed shaft, a drum mounted for rotation on said shaft, means for shifting the drum longitudinally on said shaft as the drum rotates, spring means yieldingly holding the drum at one end of the shaft, a cable wound on said drum, and a captive ball attached to said cable, said ball being projectible, as by being stroked with a golf club, whereby upon projection of the ball the cable unwinds from the drum and the drum rotates and advances on said shaft against the tension of said spring means, and means for displaying indicia in accordance with the position of ad-

vancement of the drum on the shaft, said means including a lever pivoted on said base and engaging said drum for movement therewith as the drum shifts on the shaft, a rotatable dial carrying indicia, a gear rotatable with the dial, and a member movable with said lever and having teeth meshing with said gear, whereby the rotative position of said dial varies in accordance with the position of advancement of the drum on the shaft.

9. In an apparatus of the character described, in combination, a casing, a fixed transverse shaft in said casing and having a helical groove, a drum rotatably mounted on said shaft and in engagement with said groove so as to advance longitudinally on said shaft when rotated, a turret rotatably mounted on said casing, a cylinder mounted to revolve vertically in the turret and having a tubular extension projecting through the turret, a cable, a captive ball secured to the cable, said cable passing through said tubular extension, through said cylinder, and through said casing, and being wound on said drum, mechanism actuated by the drum in accordance with the drum's rotation and advance to present indication in accordance with the distance of flight of said ball when projected, means actuated by said tubular extension of said cylinder in moving into different angles of inclination for indicating the angle of inclination incident to the flight of said ball, and means for indicating the angle of departure incident to the flight of said ball, said latter means being actuated by said turret on rotating.

This specification signed this 20th day of February, 1924.

GEORGE E. SCHENK.

vancement of the drum on the shaft, said means including a lever pivoted on said base and engaging said drum for movement therewith as the drum shifts on the shaft, a rotatable dial carrying indicia, a gear rotatable with the dial, and a member movable with said lever and having teeth meshing with said gear, whereby the rotative position of said dial varies in accordance with the position of advancement of the drum on the shaft.

9. In an apparatus of the character described, in combination, a casing, a fixed transverse shaft in said casing and having a helical groove, a drum rotatably mounted on said shaft and in engagement with said groove so as to advance longitudinally on said shaft when rotated, a turret rotatably mounted on said casing, a cylinder mounted to revolve vertically in the turret and having a tubular extension projecting through the turret, a cable, a captive ball secured to the cable, said cable passing through said tubular extension, through said cylinder, and through said casing, and being wound on said drum, mechanism actuated by the drum in accordance with the drum's rotation and advance to present indication in accordance with the distance of flight of said ball when projected, means actuated by said tubular extension of said cylinder in moving into different angles of inclination for indicating the angle of inclination incident to the flight of said ball, and means for indicating the angle of departure incident to the flight of said ball, said latter means being actuated by said turret on rotating.

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GEORGE E. SCHENK.

Certificate of Correction.

It is hereby certified that in Letters Patent No. 1,566,775, granted December 22, 1925, upon the application of George E. Schenk, of Brooklyn, New York, for an improvement in "Golf-Stroke-Recording Apparatus," errors appear in the printed specification requiring correction as follows: Page 1, line 105, after the article "the" insert the word *same;* page 2, line 48, for the word "annular" read *angular;* page 3, line 28, claim 3, for the word "yieldably" read *yieldingly;* and that the said Letters Patent should be read with these corrections therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 19th day of January, A. D. 1926.

[SEAL.]

WM. A. KINNAN,
Acting Commissioner of Patents.

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