

March 19, 1935.

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1,994,706

GOLF BALL SPEED REGISTERING DEVICE

Filed Dec. 10, 1930

2 Sheets-Sheet 1

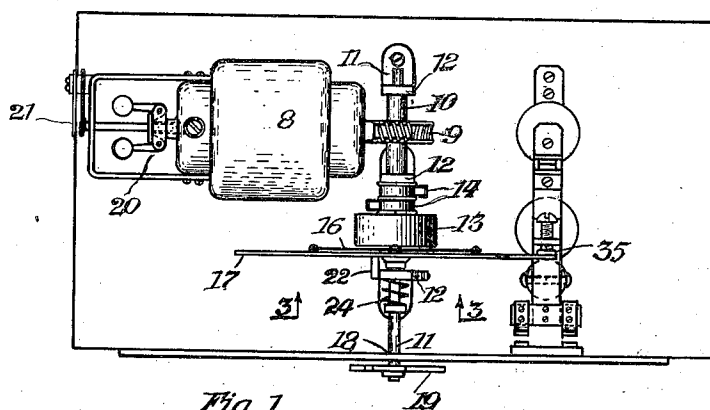


Fig. 1

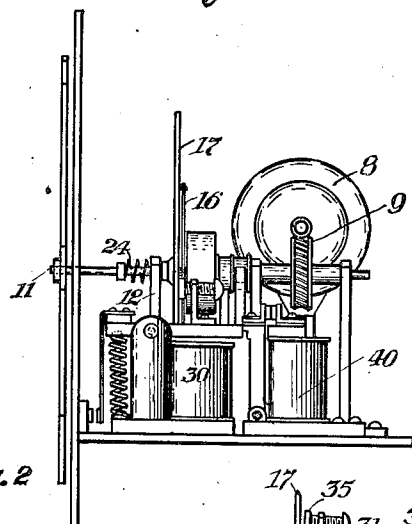


Fig. 2

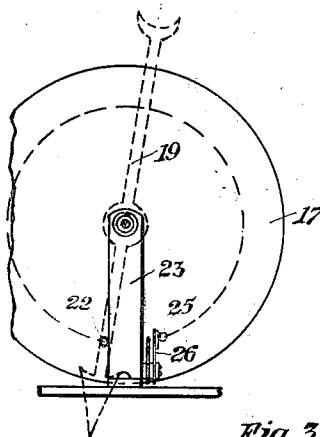


Fig. 3

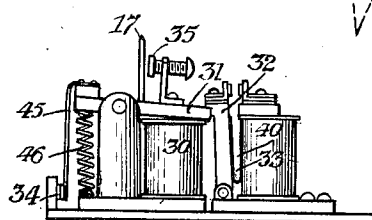


Fig. 4

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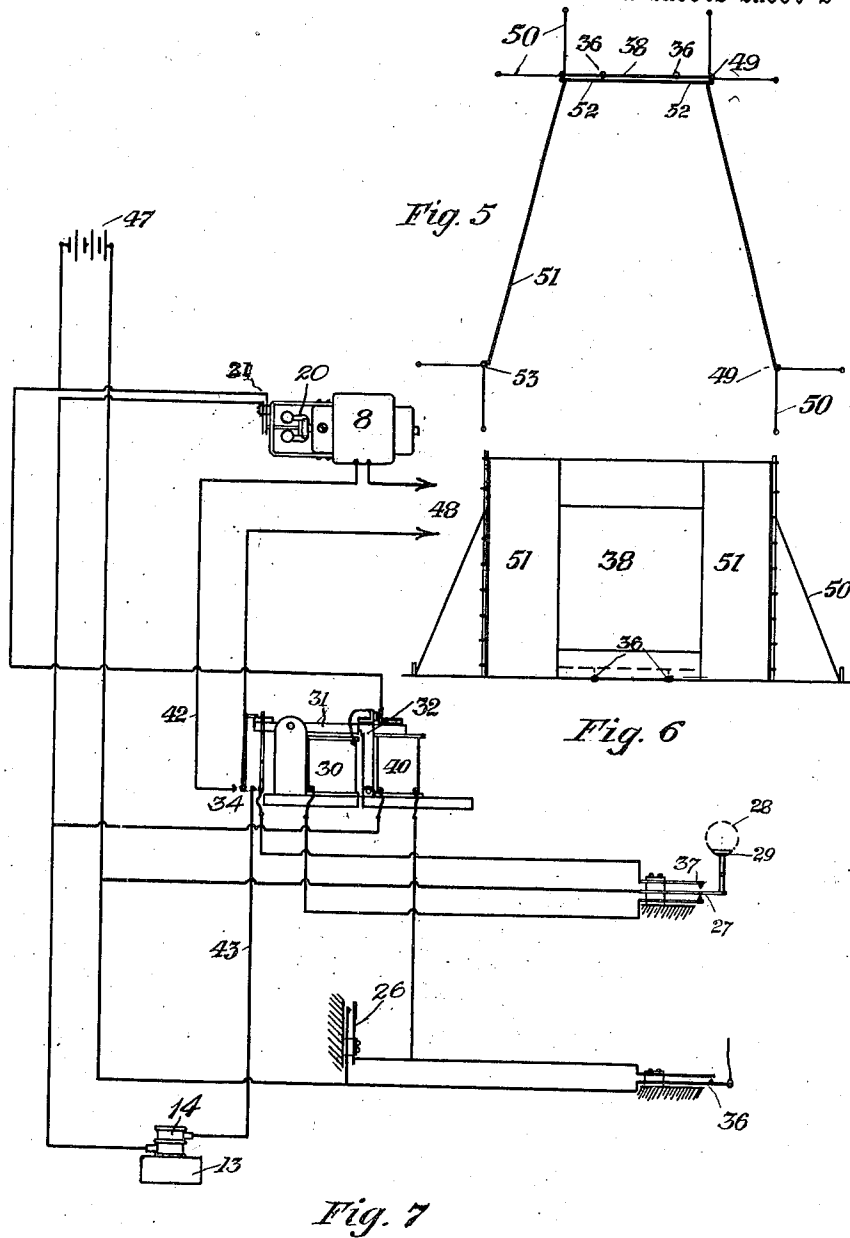
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GOLF BALL SPEED REGISTERING DEVICE

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2 Sheets-Sheet 2



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## UNITED STATES PATENT OFFICE

1,994,706

## GOLF BALL SPEED REGISTERING DEVICE

Drennan Hincks, Cadboro Bay, near Victoria,  
British Columbia, CanadaApplication December 10, 1930, Serial No. 501,447  
In Canada September 18, 1930

## 1 Claim. (Cl. 161—18)

This invention relates to a golf ball speed registering device. Its object is to provide an automatic portable and easily installed apparatus, by which golf players and others may conveniently practice driving shots with various forms of clubs, and by which the period of flight which a golf ball takes from the instant it is struck from the tee until it reaches a target at any given distance may be measured and registered. Thus the effect of the intensity of the force with which the golf ball is struck by the club is available for purposes of comparison and competition.

I am aware that certain devices have been proposed which absorb the momentum of a driven golf ball, and which afford a crude measure of the driving force stored in the golf ball; but in no case have such devices been able to register the effect of a stroke made in the natural way and under the precise conditions obtained in playing the game, as to produce the exactitude and comparable character which my device readily affords.

I attain these results by an apparatus which is inherently simple in its essentials but when required for commercial purposes may be developed by the addition of various elements to effect a maximum of convenience in its manipulation, combined with a minimum of attention. Such an apparatus is clearly described in the accompanying drawings which form a part of this application. These show a preferred embodiment of the invention but are not intended to limit the scope of its application except in so far as this may come within the wording of the claim.

The essential factors of the invention may be broadly stated as follows: A target of pliable fabric is positioned slightly behind a masking screen, the latter having an aperture of such a size that all effective shots must pass through it in order to be considered as within the fair-way. Those portions of the masking screen at the right and left of the aperture are formed into wings somewhat after the manner of a wicket screen as used for cricket practice. The target screen is preferably of pliable fabric and is in connection with an electric switch which operates by the effect of the impact of the ball on the screen. The target is located at any convenient distance, say 20 feet from a tee, the latter being so arranged and adapted that the weight of a golf ball retains a switch in its open circuit position, the switch closing when the ball is struck from the tee and thereby starting a timing device the actuation of which is arrested when the golf ball strikes the

target and operates the switch in connection therewith. The timing device actuates a pointer movable over an angular scale, the degrees of angularity traversed showing within a small but constant limit of error the time period of the flight of the ball between the two points mentioned, and therefore measuring the relative intensity of the blow delivered to the ball. It is obvious that this relative intensity can be put into actual terms by calibrating the particular apparatus in question, so that a very close approximation to either the average speed of the driven ball—say in feet per second, or the more practical calibration of approximate yards which would be traversed by the same stroke on an actual golf course.

My device may be installed not only within the practice grounds of a golf club, but on shipboard, in the basement of a city club or suburban home, or for commercial purposes anywhere where golf playing is appreciated.

Installed in any of these locations it provides realistic and entertaining practice which cannot fail to promote more efficient golf playing.

The drawings show in

Fig. 1, a plan of the general mechanism embodying the timing device.

Fig. 2, an end elevation of the mechanism shown in Fig. 1.

Fig. 3, an elevational side view through line 3—3 of Figure 1.

Fig. 4, a partial end elevation of Fig. 1 showing the contacts as in the operative position ready for making the shot.

Fig. 5, a plan view of the masking screen and target.

Fig. 6, a front elevation of the same, and

Fig. 7, a diagrammatic arrangement of the whole.

In these drawings the numeral 8 indicates an electromotor adapted to run at an approximately constant speed and to drive through the worm gear 9 the right angularly disposed tubular clutch shaft 10, through which is passed the pointer spindle 11 supported in the bearings 12. A magnetic clutch enclosed in the housing 13 and energized through the brush rings 14 is adapted to engage the diaphragm 16 secured to the clutch disc 17 and the pointer spindle 11. The latter is extended through the casing of the apparatus at 18 to carry on its extremity the pointer 19. The spindle of the motor 8 is also extended to carry the centrifugal governor 20, which is adapted to operate the switch 21, when the motor attains full speed. The clutch disc 17

which is integral with the pointer 19 is provided with a projecting pin stop 22 which is adapted to engage the upright 23 thus limiting the circular traverse of the pointer 19 when it swings back to the re-setting or zero position by the action of the torsion spring 24, one end of which is secured to the spindle 11 and the other to the bearing support 12. At the opposite extremity of the circular traverse of the pointer 19 a stop 25 is provided which closes the switch 26 should the ball fail to strike the target, this action opening the clutch solenoid circuit and effecting other functions hereinafter described which re-set the device for the next cycle of play.

The remaining elements of the device are better described by reciting its operation. In Fig. 7 at 27 a tee switch is indicated of a well known resilient double contact type. When the golf ball 28 is placed on the tee 29 the lower contact is closed and the solenoid 30 thereby energized will pull down its armature 31 and this will be held down by the engagement of the pivotal trigger member 32 acting under the effect of the spring 33. This action opens the starting circuit (which is thus merely momentary) closes the motor switch 34, and prepares the starting circuit for closure by subsequent action of switch 27—37, at the same time releasing the brake 35 from the clutch disc 17 so that the pointer 19 may be returned to the zero position by the action of the torsion spring 24. It is to be noted that the armature 31 is in the form of a lever of the first order, to the short arm of which is secured a contact member 45 which closes the circuit of the motor 8 against the action of the spring 46.

When the motor 8 attains full speed the governor switch 21 closes and thus applies D. C. potential to the screen switch 36 and the tee switch 27. It will thus be seen that with the exception of the starting solenoid 30 none of the apparatus will function until the motor has attained full speed, thus there is no speed error in the timing operation—but this entails no actual delay in the functioning of the apparatus.

During this time the switch 27 has been held open by the weight of the ball 28. Immediately the ball is driven off the tee the switch 27 closes against the upper contact 37 and completes the solenoid circuit of the magnetic clutch which thereupon engages the clutch diaphragm 16 whereby the pointer spindle 11 will revolve with

the clutch shaft 10, and the pointer 19 will revolve in a clockwise direction until the ball 28 strikes the surface of the target 38 and momentarily closes the target switch 36 connected thereto, or alternatively, should the ball miss the target 38 and the pointer continue to revolve the latter will be arrested by the stop switch 26 after traversing the entire scale.

The closing of either of the switches 26 or 36 will complete the circuit through the trigger solenoid 40, which will then attract its armature 32, thus releasing the armature 31 of the solenoid 30, open the motor circuit 42 and the clutch solenoid circuit 43, at the same instant applying the brake 44 to the clutch disc 17 immediately arresting the pointer 19, and thereby registering the period of the golf ball flight in terms of the angular motion of the pointer 19. In Fig. 7 a direct current storage battery is indicated at 47, and the source of the electric supply at 48.

In Fig. 5 and Fig. 6 the numeral 49 indicates the posts supporting target 38, 50 the guy wires, 51 the masking screen, 52 the target aperture therethrough, and 53 are the posts supporting the extremities of the side wings of the masking screen.

Having now fully described the nature of my said invention, what I claim and desire to secure by Letters Patent of the United States, is:

In a device for practicing golf playing and for indicating the force of driving shots used therein, and wherein is employed a vertically disposed target to arrest the flight of the ball, in combination, a timer for timing the flight of the ball comprising a rotatable disc and an indicator connected thereto, a constant speed motor, an electromagnetic clutch for connecting said disc to said motor to be driven thereby, a brake for said disc, means including a double action tee switch and a double-solenoid interlocking-armature relay means and connections therefor, whereby the placing of a golf ball on said tee switch starts said motor and releases said brake, and the removal of said ball from said tee switch energizes said clutch to start said indicator, a target switch with means for closing the same when the ball strikes said target and means whereby the closure of said target switch deenergizes said clutch to stop said indicator, deenergizes said motor, and applies said brake to said disc to hold said indicator from rotation in either direction.

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