Oct. 28, 1941. E. DUCHESNE 2,260,514

GOLF BALL TEEING DEVICE

Filed March 16, 1939 2 Sheets-Sheet 1

Fig. 1.

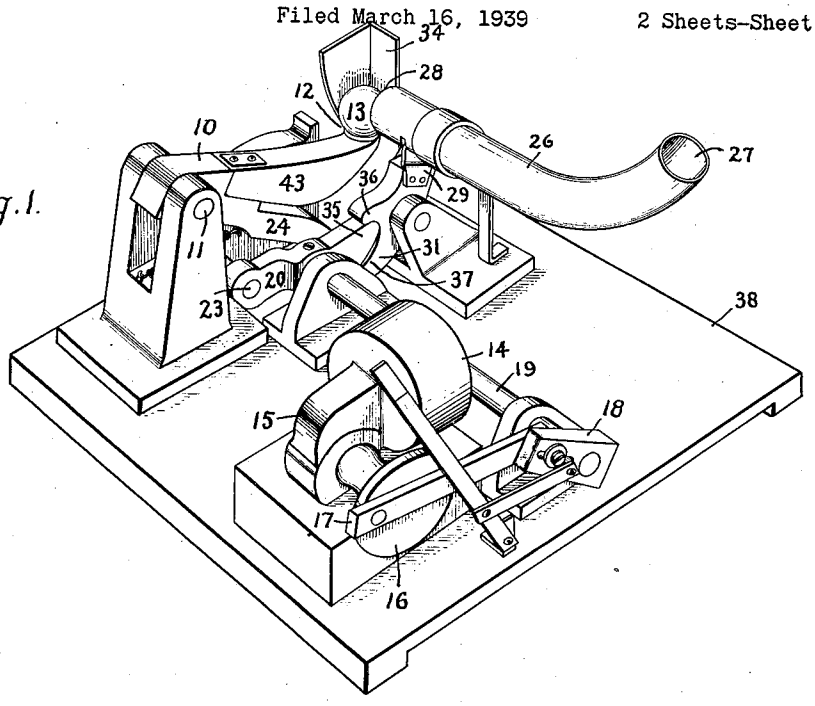
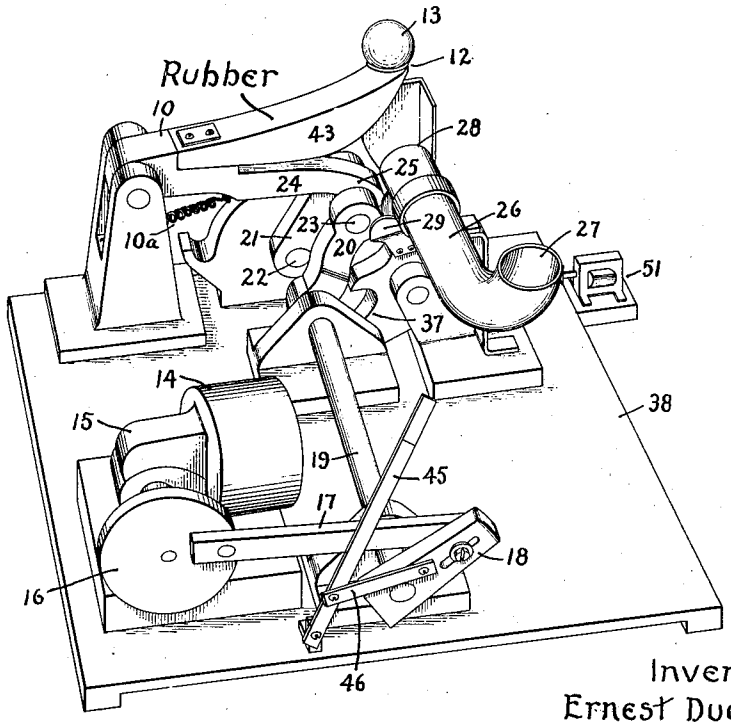


Fig. 2.



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Fig. 3.

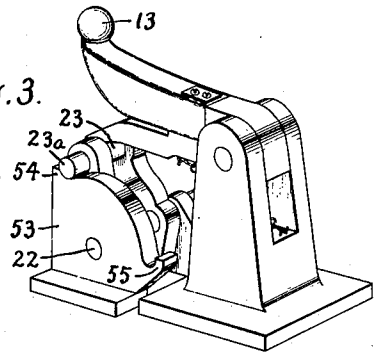


Fig. 4.

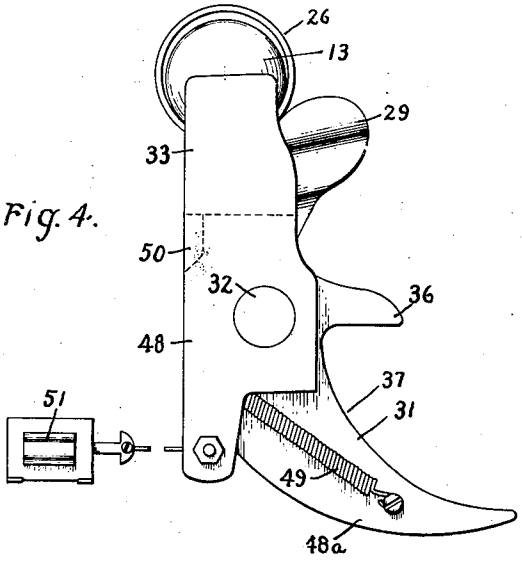


Fig. 5.

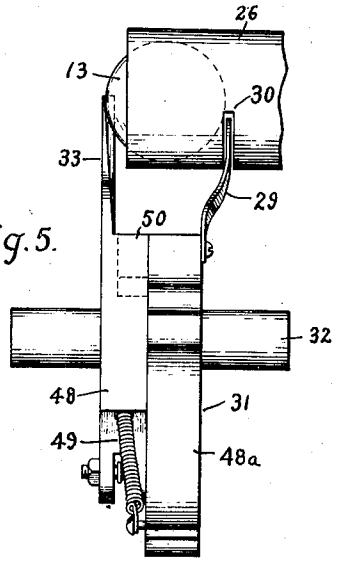


Fig. 6.

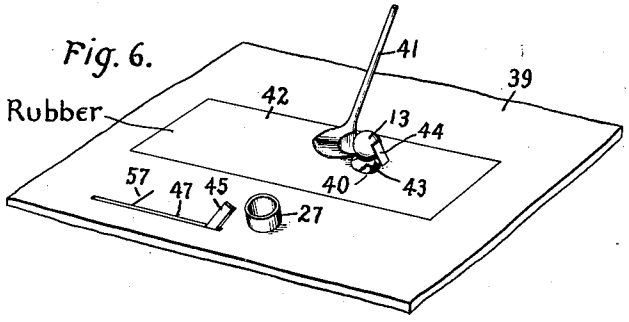
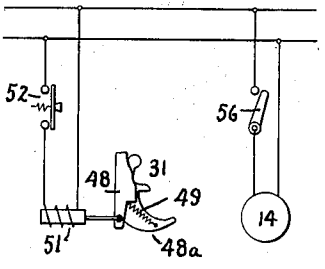


Fig. 7.



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2,260,514

UNITED STATES PATENT OFFICE

2,260,514

GOLF BALL TEEING DEVICE

Ernest Duchesne, Schenectady, N. Y.

Application March 16, 1939, Serial No. 262,121

5 Claims. (Cl. 273—33)

My invention relates to golf ball teeing devices and has for its object a simple and reliable device for use in practice for the purpose of improving the player's swinging technic.

Golf players, even the more skillful, indulge in frequent practice swings without a ball. The novice or infrequent player is especially addicted to this method of improving his game. It has the advantage that it may be used indoors at any time and in localities where space is not available for the flight of the driven ball. While this method undoubtedly improves the coordination of the player's muscles, he does not obtain the greatest possible benefit in the improvement of his game because of his inevitable lack of poise and precision when he addresses and swings at the ball in actual play.

It is an object of my invention to provide a device for automatically bringing a golf ball into playing position to be hit after the player has taken a few swings, and if desired at unexpected times during a series of practice swings. He, in this way, learns to use his best swing on the ball.

For a more complete understanding of my invention, reference should be had to the accompanying drawings in which Fig. 1 is a view in perspective of a golf ball teeing device embodying my invention and showing the parts in their positions before the ball is raised to driving position; Fig. 2 is a view similar to Fig. 1 but showing the ball raised to driving position; Fig. 3 is a perspective view of parts of the mechanism; Fig. 4 is an enlarged side elevation view showing details of construction; Fig. 5 is a front elevation view of Fig. 4; Fig. 6 is a perspective view showing the playing platform or floor of the device; while Fig. 7 is a wiring diagram showing the control for the intermittent ball feeding mechanism.

Referring to the drawings, my invention in the particular form shown comprises an arm **10** movable about a pivot **11** and provided at its free end with a circular depression or seat **12**, forming a tee for the ball, in which the golf ball **13** rests and is raised by the arm to the driving or playing position shown in Fig. 2. This arm **10** is operated by a suitable driving means, such as a substantially constant speed electric motor **14**. The motor **14** is connected through speed reducing gearing **15** to drive a crank disk **16** which is connected through a link **17** to a crank **18**. It will be understood that the crank **18** is somewhat longer than the crank formed by the disk **16** so that as the disk is turned continuously by the motor, the crank **18** is moved back and forth through an angle considerably less than 180°, i. e., between the extreme positions shown in Figs. 1 and 2.

The crank **18** is mounted on a shaft **19** carrying on its opposite end a double arm comprising an arm **20** secured to the shaft and an arm **21** spaced from the arm **20** but parallel therewith and having a pivot **22** in alinement with the shaft **19**. These two arms **20** and **21** are secured together at their ends by a pin **23**. As the pin **23** moves back and forth with the shaft **19**, it raises and lower the arm **10**, the arm being biased by a spring **10a** to bring a part or member **24** thereof into engagement with the pin **23**. As shown, the lower surface of the member **24**, engaged by the pin, is arc shaped at the end **25** so that the arm **10** is raised completely as the pin **23** slides along about the straight left-hand half of the member **24** and is thereafter maintained in the raised position as the pin continues its movement over the arc-shaped surface. The arc-shaped portion, when in the raised position, has as its center the axis of the shaft **19**.

This arrangement of the straight and arc-shaped surfaces on the member **24** causes the arm **10** to be raised with first a rapid movement which decreases in rate to bring the ball to rest gradually so that it remains at rest in position on the seat **12** and is not thrown off. Thus the arm **20** in raising the arm **10** is at first nearly parallel with the member **24** thereof so that the arm **10** including the member **24** is raised rapidly. As the arm **20** moves toward a 90° relation with the member **24** the member **24** is raised less rapidly until when the two parts are in 90° relation the member **24** is at rest as is also the tee **12**. Thereafter the pin **23** moves onto the downwardly curved arc surface **25** which holds the member **24** stationary and also the ball in its raised position. Also it will be observed that the dead center positions of the disk **16** cause the arm **20** to move relatively slowly at these points, i. e., just before the pin **23** engages the arm **24** in the upward stroke and at the completion of the movement of the arm **20**.

For the purpose of feeding the balls successively to the seat **12** on the end of the arm **10**, I have provided a tube **26** forming a magazine into which several balls may be dropped through the open end **27**, the tube being inclined downward to the other end **28** which is just opposite the seat **12** when the arm **10** is in its lowermost position. The feeding of the balls is controlled by a shutter **29** moving in a slot **30** (Fig. 5) in the tube **26**, and mounted on an arm **31** having a

fixed pivot 32. When the shutter is moved into the slot, it obstructs the passage of the balls through the tube. When it is swung out of the slot to the position shown in Figs. 2, 4 and 5, the balls roll down until the end ball engages a second shutter 33 carried by the arm 31 but spaced from the shutter 29 a distance equal to or somewhat less than the diameter of the ball so that the shutter 29 when swung back into the slot 30 is just in front of and holds the next ball.

Moreover, the shutter 33 is angularly spaced about the pivot 32 with respect to the shutter 29 so that it stops the balls as shown in Figs. 4 and 5, but when the shutter 29 is swung into the slot 30, the shutter 33 moves beyond the tube to permit the end ball to roll out of the tube onto the seat 12 which preferably is slightly lower than the bottom of the tube. A stationary guide 34 (Fig. 1) is provided to prevent the ball from rolling over the seat 12. When a ball has been fed onto the seat 12, the arm 31 may be moved back, clockwise as seen in Fig. 4, to the position shown in Figs. 2, 4 and 5 whereupon a ball rolls past the shutter 29 into engagement with the shutter 33 to the position shown in Figs. 4 and 5.

The arm 31 is moved periodically back and forth to feed the balls, as just described, by means of an extension 35 on the arm 20. When the arm 20 is in the extreme position shown in Fig. 1, the extension 35 has engaged a projection 36 on the arm 31 and has thereby moved the arm 31, clockwise as seen in Fig. 1, to the position shown, whereby a ball is discharged to the seat 12. Preferably the lower end of the arm 31 engages the extension 35 to prevent overtravel of the arm 31. As the arm 20 starts back, clockwise as seen in Fig. 1, the projection or extension 35 moves downward over the face 37 thereby swinging the arm 31, counterclockwise as seen in Fig. 1, to the position shown in Fig. 2 and also in Figs. 4 and 5 at which time the arm 20 reaches its opposite extreme position shown. Preferably a lower portion of the face 37 is an arc of a circle which when the arm 31 is in the position of Fig. 2 has its center on the axis of the shaft 19.

A suitable base or support 38 is provided for the mechanism. The device in use will be mounted under a platform or floor on which the player stands and from which he drives the ball. This is shown in Fig. 6, the platform 39 has an opening 40 through which the seat 12 of the arm 10 projects when raised as shown in Fig. 2, carrying the ball and forming a tee for raising the ball above the floor so that it may be driven off by a club 41. Preferably a rubber mat 42 is provided around the ball as a protection for the floor and the club. Also the member 43 of the arm 10 carrying the ball is made of a flexible material, such as rubber, so that the tee end will not be damaged when hit by the club. Just beyond the hole 40 is a rubber flap 44 which stands upright and is used for the player to swing at when the ball is not in position. Also the player may swing at the tee seat 12 when it comes into view. The platform 39 is preferably the cover of a container or enclosure for the device.

Also the rubber member 43 is spaced from the member 24 for a considerable portion of its length so that it is free to bend downward when the end 12 is hit by the club. It will be understood that the device is arranged below the platform 39 with the member 43 extending along the path of the club swing with its pivoted end toward the club as it approaches the ball. Thus when the club hits the seat 12 the member 43 readily bends downward without damage to it. It will be observed that the member 43 when in the raised position is inclined upward from the pivot 11 to the tee seat 12. Furthermore, the edge of the tee seat is substantially flush with the upper surface of the member 43 and consequently the club, if it engages the member 43, slides smoothly over this inclined upper surface deflecting the member 43 downward without damage thereto. In other words, there is no tee or other projection on the member 43 which may be caught and torn or broken by the club. This is of course for a right-handed golfer, the player standing facing the signal arm 45.

Another feature is a swing timing signal device consisting of an arm 45 pivoted on the base 38 adjacent the crank 18 and connected to the crank by means of a link 46 so as to swing with the crank but with a smaller swinging arc. The upper end of the arm 45 projects through a slot 47 in the platform and serves as a signal or guide for the player in timing his swing. Thus the player, even though a ball may not be in view when he starts his swing, will know that a ball will be in position ready to be hit before his swing is completed. Moreover, the ball is raised to the position shown in Figs. 2 and 6 before the signal 45 reaches the end of its movement, and the ball remains in this position through the remaining portion of the movement of the arm 45 in each direction by reason of the arc-shaped surface 25 on the arm 10 engaged by the pin 23. In a typical device, the tee seat 12 remains raised throughout the right-hand half of the movement of the arm 45. Moreover, the motion of the arm 45, slow at the left-hand end of the slot 47, is roughly typical of the slow back swing and slow effortless beginning of the downswing that golfers strive for. This is caused by the dead center position of the disk 16.

I have also provided means for bringing a ball into driving position at irregular intervals and unexpectedly. To this end the shutter 33 is mounted on a separate part or arm 48 (Fig. 4) forming a part of arm 31 mounted on the pivot 32 and normally held by a spring 49 in the predetermined angular relation shown with the other part 48a of the arm 31 carrying the shutter 29. As shown, the part 48a is provided with a projection 50 against which the arm 48 is held by the spring 49. This arm 48 may be held by a magnet 51 connected thereto in the position shown in Fig. 4 against the force of the spring when the part 48a moves.

As shown in Fig. 7, a normally open push button 52 is provided in circuit with the magnet 51. The instructor of the player, for example, may hold the push button closed while the player swings his club in time with the arm 45. When the instructor wants a ball, he releases the button, although he should do this when the signal 45 is at or near its left-hand limit of travel at which time the arm 10 is in its lowermost position to receive the ball. Thus the instructor may give the player a ball only when he is satisfied with the player's swing.

A great advantage of this arrangement is that the player after taking a few practice swings can immediately hit a ball without changing his stance and while his muscles are tuned to the correct swing.

Preferably the motor 14 is provided with variable speed adjusting means (not shown) so that the mechanism and the arm 45 may be timed to suit the inclination of the player. I have found

that speeds of the disk 16 of from 10 to 25 R. P. M. are suitable to the average player.

As shown in Fig. 3, the end of the pin 23 opposite the shaft 19 is extended over the bracket 53 for the pivot 22 and the bracket is provided with projections 54 and 55 forming stops for the pin 23a. These stops are provided to limit the throw of the arm 20 in the event the arm 20 is thrown manually, as by a lever.

A switch 56 (Fig. 7) is provided in circuit with the motor 14 by means of which the appearance of the ball can be controlled by starting and stopping the motor; for example, the golf instructor may open the switch 56 when the signal 45 reaches a mark 57 on the platform in its forward stroke. The ball is then just below the upper surface of the platform. When a ball is desired, the switch 56 is closed to start the motor which brings the ball quickly into playing position.

Moreover, in a full automatic device with no instructor, the solenoid 51 can be controlled by a switch operated through suitable means driven by the shaft 19, such as ratchet means, so as to energize the solenoid and prevent the teeing of a ball every second or third stroke of the indicator 45. Or the solenoid may be energized for several strokes and then deenergized to provide a ball.

While I have shown a particular embodiment of my invention, it will be understood, of course, that I do not wish to be limited thereto, since many modifications may be made and I, therefore, contemplate by the appended claims to cover any such modifications as fall within the true spirit and scope of my invention.

What I claim as new and desire to secure by Letters Patent of the United States is:

1. A golf ball teeing device comprising an arm having a substantially horizontal pivot and a seat for a ball on its free end, means for feeding balls to said seat when in its lowermost position, a second arm provided with a shutter cooperating with said feeding means to control the discharge of balls therefrom, a third arm having an intermediate pivot and its opposite ends alternately engaging said first two arms to raise and lower said first arm and oscillate said second arm to discharge a ball to said seat when said third arm is oscillated back and forth through a predetermined angle, driving means for said third arm, a separate member for supporting said shutter forming a part of said second arm and mounted on the same pivot as said second arm, spring means normally holding said member in a predetermined relation with said second arm, and means for holding said member to prevent the discharge of a ball to said seat.

2. A golf ball teeing device comprising an arm having a substantially horizontal pivot and a seat for a ball on its free end, a tube for feeding balls to said seat when in its lowermost position, a second arm provided with a pair of spaced shutters cooperating with said tube to control the discharge of balls therefrom, a third arm having an intermediate pivot and its opposite ends alternately engaging said first two arms to raise and lower said first arm and oscillate said second arm to discharge a ball to said seat when said third arm is oscillated back and forth through a predetermined angle, and driving means for said third arm, a separate member for supporting one of said shutters forming a part of said second arm and mounted on the same pivot as said second arm, spring means normally holding said member in a predetermined relation with said second arm, and means for holding said member to prevent the discharge of a ball to said seat.

3. A golf ball teeing device comprising a driving motor, an arm, a driving connection between said motor and said arm for oscillating said arm upon continuous rotation of said motor, a bearing member on the movable end of said arm, a second arm having a stationary horizontal pivot and provided with a lower surface curved in the plane of movement of said arm engaging said bearing member whereby said second arm is raised and lowered by oscillatory movement of said first arm, said lower surface having a portion provided with a curvature in the plane of rotation of said first arm substantially the same as the arc of movement of said bearing member so that said second arm is maintained stationary for a predetermined interval in its maximum raised position, and a flexible arm secured to said second arm at a point adjacent said pivot extending above said second arm in longitudinally spaced relation therewith, said flexible arm having a smooth unbroken upper surface terminating in a tee seat and inclined upward toward said tee seat when said second arm is in its maximum raised position so that said flexible arm is deflected downward without substantial damage by engagement therewith of a club moving in a direction from said pivot toward said tee seat.

4. A golf ball teeing device comprising a driving motor, a shaft, a driving connection between said motor and said shaft for oscillating said shaft upon continuous rotation of said motor, an arm secured at one end to said shaft, a bearing member on the other end of said arm, a second arm having a stationary horizontal pivot and provided with a lower surface curved in the plane of movement of said arm engaging said bearing member whereby said second arm is raised and lowered by oscillatory movement of said first arm, said lower surface having a portion provided with a curvature in the plane of rotation of said first arm substantially the same as the arc of movement of said bearing member so that said second arm is maintained stationary for a predetermined interval in its maximum raised position, a flexible arm secured to said second arm at a point adjacent said pivot extending above said second arm in longitudinally spaced relation therewith, said flexible arm having a smooth unbroken upper surface terminating in a tee seat and being inclined upward toward said tee seat when said second arm is in its maximum raised position so that said flexible arm is deflected downward without substantial damage by engagement therewith of a club moving in a direction from said pivot toward said tee seat, golf ball feeding means, a fourth arm secured to said shaft, and a shutter member for said feeding means oscillated by said fourth arm to feed a golf ball to said tee seat when said tee seat is in a lowered position.

5. A golf ball teeing device comprising a supporting member, an arm provided with a pivot, means for oscillating said arm about said pivot, a bearing member on said arm engaging said supporting member, whereby said supporting member is raised and lowered by movement of said arm, said supporting member having a surface engaged by said bearing member provided with a curvature substantially the same as the arc of movement of said bearing member so that said

supporting member is maintained stationary for a predetermined interval in a raised position, a flexible supporting member secured at one end to said first supporting member, a tee seat on the other end of said flexible member substantially flush with the upper surface of said flexible member, said flexible member having a smooth, unbroken upper surface terminating in said tee seat and being inclined upward toward said tee seat when said first supporting member is in a raised position so that said flexible member presents a smooth, unbroken surface to a club moving in a direction away from said pivot toward said tee seat, whereby said flexible member when engaged by the club is deflected downward relative to said first supporting member out of the path of the club without substantial damage to said flexible member and said tee seat.

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