

April 4, 1939.

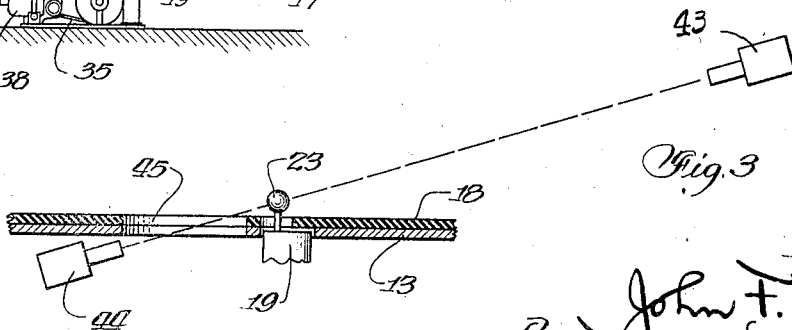
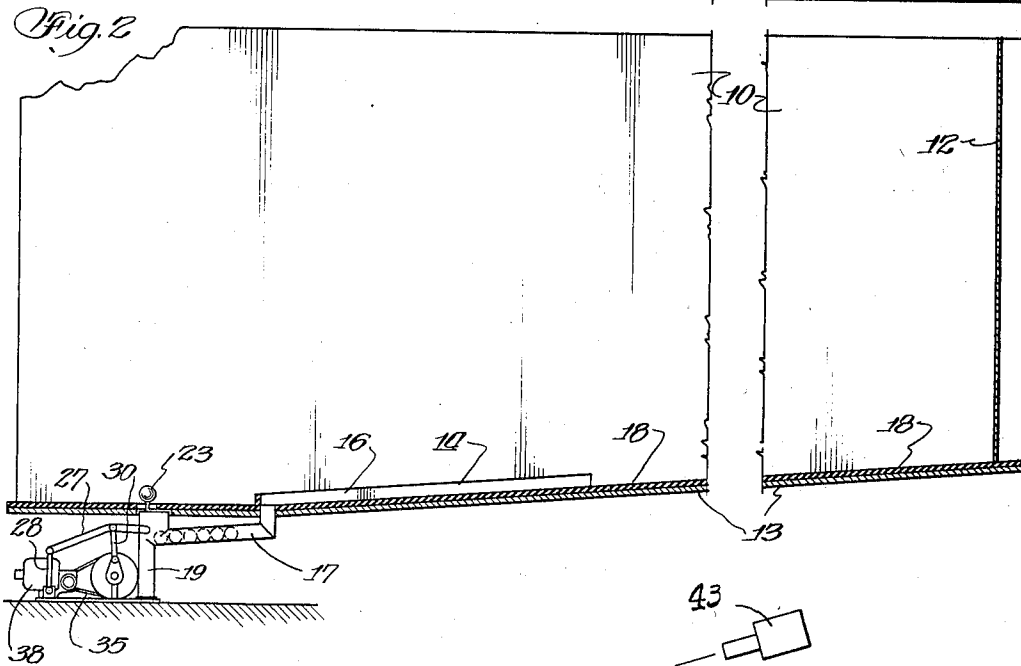
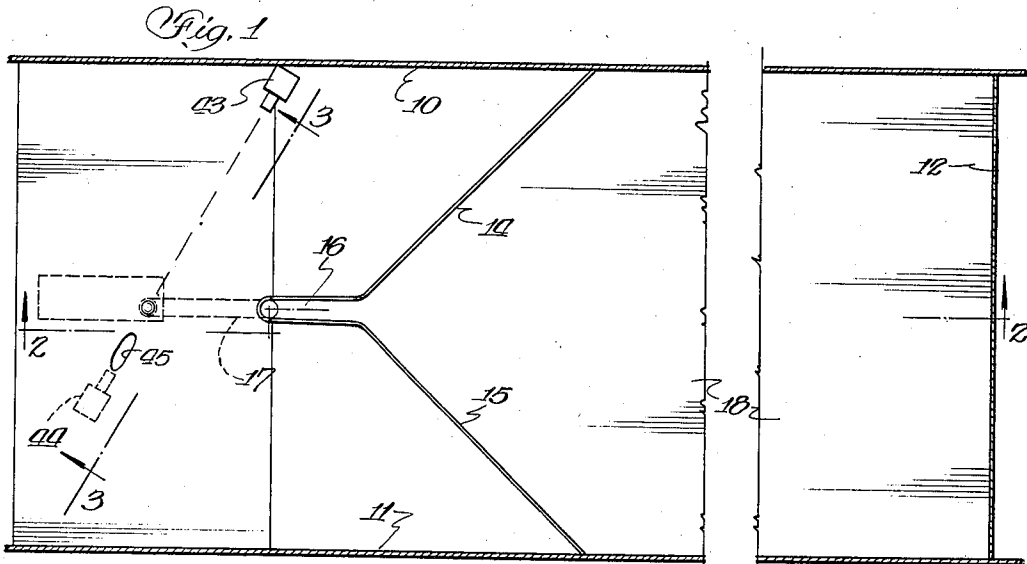
J. F. BLASKI

2,152,680

MECHANICAL TEEING APPARATUS

Filed Nov. 20, 1937

2 Sheets-Sheet 1



Inventor:
John F. Blaski,
By: Fricker & DeBorst, Attys.

April 4, 1939.

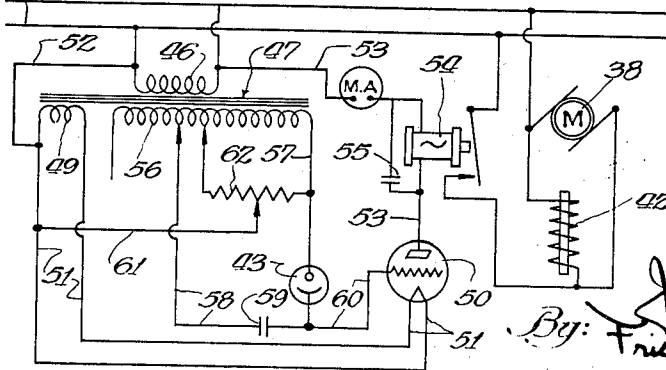
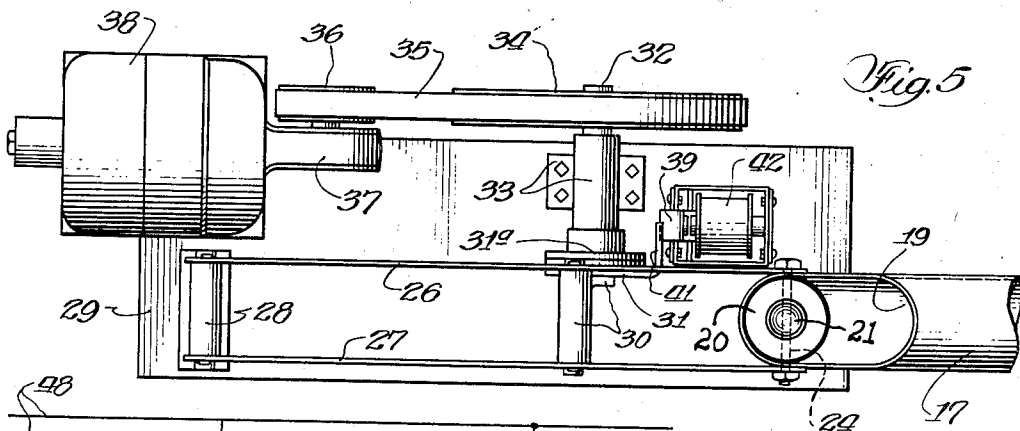
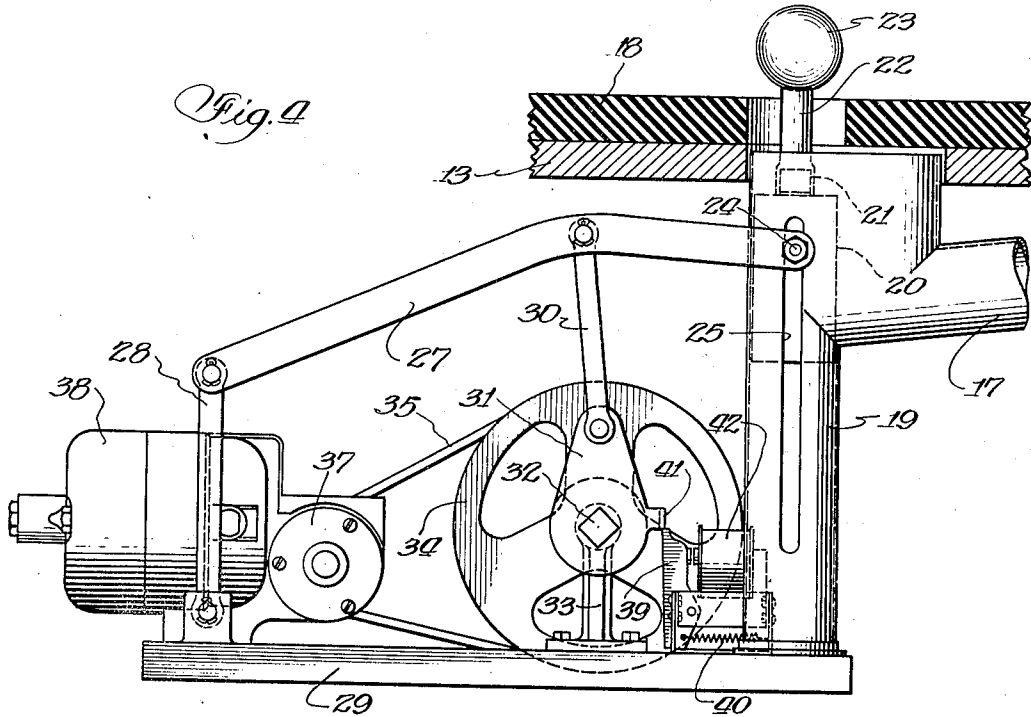
J. F. BLASKI

2,152,680

MECHANICAL TEEING APPARATUS

Filed Nov. 20, 1937

2 Sheets-Sheet 2



Inventor:
John F. Blaski,
By: Frick & DeBusk, Attys.

UNITED STATES PATENT OFFICE

2,152,680

MECHANICAL TEEING APPARATUS

John F. Blaski, Chicago, Ill.

Application November 20, 1937, Serial No. 175,584

5 Claims. (Cl. 273—33)

My invention relates to mechanical teeing apparatus of a type adapted particularly for use in connection with practice in driving and it has for its object the provision of a new and improved form and arrangement of parts by which a golf ball when driven into a net is automatically returned to the driving point and teed up for the next successive drive. It is one of the objects of my invention to provide a device of this type of such simple form and operation as to enable me to produce the apparatus at a low cost and so as to cut down to a minimum the likelihood that any part of the apparatus shall be thrown out of adjustment or otherwise rendered inoperative in use. To these ends, it is one of the objects of my invention to provide an improved arrangement of this type comprising only a few moving parts, with such parts coordinated so as to work smoothly together without any undue stress or wear thereon, the action preferably to be as completely automatic as possible so as to cut down the necessity for attention to the operation on the part of the user.

For carrying out this object, I have provided an improved construction of horizontally pivoted lever and cooperating parts comprising an improved arrangement of cupped or recessed member and actuating means therefor, an improved arrangement of braking and stopping means for the actuating mechanism for assuring that it shall stop in the desired spaced relation ready for the succeeding operative stroke, and an improved arrangement of parts for feeding one ball at a time into position on the recessed member for elevation into normal teed position at each movement of the lever through its downward and upward strokes.

It is one of the objects of my invention to provide an improved arrangement of control means by which the teeing mechanism shall be thrown into operation by the removal of the ball from its teed position, this result being attained in the preferred form of apparatus by the use of an electric motor thrown into and out of operation in the desired timed relation through the medium of a photo-electric cell to which the ray from the light source provided is accessible only when there is no ball in normally teed position.

It is another object of my invention to improve apparatus of this type in sundry details hereinafter pointed out. The preferred means by which I have accomplished my several objects are illustrated in the drawings and are hereinafter specifically described. That which I be-

lieve to be new and desire to cover by Letters Patent is set forth in the claims.

In the drawings, which are more or less diagrammatic throughout,—

Fig. 1 is a horizontal sectional view through the preferred form of my improved apparatus;

Fig. 2 is a vertical sectional view taken substantially at line 2—2 of Fig. 1;

Fig. 3 is a vertical sectional view of a fragmentary portion of the arrangement shown in Fig. 1 and taken substantially at the line 3—3 of said Fig. 1;

Fig. 4 is an enlarged side view of the teeing mechanism and the actuating means therefor;

Fig. 5 is a top plan view of the parts shown in Fig. 4 but with the floor removed; and

Fig. 6 is a schematic view showing the wiring of the control mechanism as used in my preferred arrangement.

Referring now to the several figures of the drawings, in which corresponding parts are indicated by the same reference characters, 10 and 11 indicate the side walls of a room or compartment having a driving net 12 secured thereacross at one end in position to have a golf ball driven into the net. As is best shown in Fig. 2, the floor 13 of the room is slanting toward one end so as to provide that a ball driven into the net will roll from the net toward the opposite end of the room where it is directed by diagonally disposed guides 14 and 15 into a chute 16 for delivery to a tube 17 arranged in slanting position beneath the floor 13. In the arrangement shown, a rubber mat 18 is provided as a covering means for the floor.

My improved teeing mechanism comprises a tubular member 19 arranged in vertical position beneath the floor with an opening at one side in communication with the tube 17 to which the golf balls are delivered as above described. Within the tubular member 19, I have mounted a head or block 20 which is slidable vertically within the member 19 at its upper end. The head 20 is provided with a lug 21 upon which a short length of rubber tube 22 is mounted, such tube constituting a cup or recessed member adapted to support a golf ball 23 removably thereon. When the head 20 is moved downwardly to the limit of its motion, the farthest advanced golf ball 23 is free to roll into position upon the upper end of the recessed member 22, being centered in position thereon by engagement with the side walls of the tube 19. When the head 20 is then moved upwardly, the ball 23 is raised to the elevated teed position as shown in Fig. 4. As best

shown in Fig. 5, the upper end portion of the tubular member 19 is given an oval form of substantially twice as great a length as its width whereby ample clearance is provided for the upward movement of the ball 23 without any danger of the ball being brought into contact with the fixed parts so as to interfere with the upward movement of the ball.

For controlling the position of the head 20 within the tube 19, and for giving the head its vertical movements up and down therein, I have provided a bolt 24 extending through the head and through slots 25 in the side walls of the tube 19, the outer ends of the bolt 24 being connected with the horizontally spaced bars 26 and 27 of a vertically movable lever, the opposite end of which is pivotally mounted upon a horizontal axis on the upper end of a link 28. The link 28 in turn is pivotally mounted upon a horizontal axis on a base 29.

Means is provided for swinging the lever 26—27 upwardly and downwardly comprising a connecting rod 30 pivotally connected at its upper end with the lever at an intermediate point therealong and pivotally connected at its lower end with a crank arm 31 which in turn is connected by a friction clutch 31a of any approved type with a short shaft 32 journaled in a standard 33 rising from said base 29. The shaft 32 is provided at its outer end with a pulley 34 which is connected by a belt 35 with a second pulley 36 connected by means of a speed reduction mechanism 37 with an electric motor 38. The arrangement is such that upon operation of the motor the shaft 32 and crank arm 31 are rotated for moving the lever and the connected head 20 upwardly and downwardly.

For stopping the movement of the lever 27 and the head 20 at the desired critical point at which the ball 23 is held in its uppermost position, I have provided a latch arm 39 pivotally mounted upon the base 29 and normally held by a coiled spring 40 in position to engage a lug 41 connected with the crank arm 31. For moving the latch arm 39 toward the right in Fig. 4 against the action of the spring 40 for clearing the lug 41, I have provided an electromagnet 42 opposite the upper end of the latch arm in position to attract the latch arm whenever the magnet is energized.

The means for controlling the operation of the motor 38 and the magnet 42 comprise a photoelectric cell 43 at one side of the ball 23 in its teed-up position and an electric lamp 44 at the opposite side of the ball, the arrangement being such that when a ball 23 is in normal teed position the ray of light from the lamp 44 is shut off from access to the cell 43 but such that when the ball is removed from the recessed member by being driven therefrom or otherwise the ray of light from the lamp is directed upon the cell, an opening being provided through the floor at the point 45 for this purpose.

In the arrangement shown in Fig. 6, the cell 43 is shown connected up with a transformer 47, the primary coil 46 of which is connected with the leads 48 of an ordinary 110-volt alternating current circuit. The electrical hookup illustrated is of well known approved type which forms in and of itself no part of my invention. The secondary coil 49 of the transformer is connected with the filament of an amplifier tube 50 of any suitable type by current leads 51, one of such leads 51 being connected by a lead 52 with the primary coil 46 which in turn is connected by a lead 53 with the plate of said tube 50. In the

arrangement shown, the lead 53 is provided with an alternating current relay 54, a condenser 55 being connected in parallel relation to the relay. A variable portion of the secondary coil 56 of the transformer is connected by leads 57 and 58 with the photo cell 43, such lead 58 being provided with a condenser 59 therein and being connected by a lead 60 with the grid of the amplifier tube 50. Connection between the grid and the filament of the tube 50 is effected by a lead 61 connected at one end to the lead 51 and engaging at its opposite end with an adjustable portion of a resistance 62 which in turn is connected across a variable portion of the secondary coil 56. The arrangement is such that when a ray of light of suitable strength is directed on the cell 43 an amplified current is caused to flow through the tube 50 and the relay 54 for closing the relay.

In the arrangement shown, the motor 38 and the magnet 42 are connected in parallel relation to each other with the leads 48 of the commercial circuit, such connection being effected through the relay 54 so that when such relay is energized the motor is set into operation and the magnet is energized.

With the parts in the condition as illustrated in Fig. 4 so that the ball 23 in normal teed position on the recessed member 22 cuts off the ray of light from access to the photo cell 43, the relay 54 will be open as shown in Fig. 6. When thereafter the ball is driven out of position on the recessed member 22 so as to permit the ray of light to strike the cell 43, the relay is actuated for throwing the motor into operation and for energizing the magnet 42 so as to cause it to draw the latch arm 39 toward the right in Fig. 4 out of the path of the lug 41 against the action of the spring 40 so as to permit the motor to revolve the crank arm 31 for giving the lever 26—27 its operative up and down movements. When the lever 26—27 and the head 20 reach their lowermost positions, another ball 23 is delivered by gravity into position on the recessed member 22 from the tube 17 so as to be raised upon the succeeding upward stroke of the lever into normal teed position as shown in connection with the ball 23 in Fig. 4. As soon as the ball on the cup member 22 reaches approximately its uppermost position, the ray of light from the lamp 44 is again cut off from the cell 43 so as to terminate the delivery of amplified current to the relay, whereupon the relay automatically opens for shutting off the operation of the motor 38 and deenergizing the magnet 42. The arrangement is such that the motor continues to revolve slowly by its momentum until the lug 41 comes into contact with the latch arm 39 which has been returned by the spring 40 to its operative position after the deenergization of the magnet. The latch arm serves as a positive stop means with respect to the movement of the crank arm and the connected lever for insuring that the ball in position on the recessed member shall be stopped definitely in its normal critical teed position. This result is made feasible by reason of the use of the friction clutch in the connections between the motor and the recessed member adapted to yield when the resistance to the normal movement of the recessed member is increased greatly above the normal. When the movement of the crank arm 31 is thus terminated, the motor is permitted to continue its revolution until its momentum is spent, the clutch being adapted to slip to the necessary extent for attaining this result. Even if the clutch 31a

were omitted, the necessary slippage would take place between the belt and pulleys for obtaining similar results.

By the use of my improved arrangement, one is enabled to practice driving under ideal conditions, a fresh ball being replaced in normal teed position in each instance promptly after the prior ball has been driven from the tee, the arrangement being such that this result is attained without any attention whatever on the part of the driver.

While I prefer to employ the form of apparatus as shown in my drawings and as above described, it is to be understood that my invention is not limited to the form and arrangement as shown except so far as it may be so limited by the claims, it being understood that changes might well be made in the form and arrangement of parts without departing from my invention.

I claim:

1. In an apparatus of the class described, the combination of a recessed member adapted to support a golf ball thereon, a revolvable element operatively connected with said recessed member and adapted to successively raise and lower it, stop means effective when thrown into operation for stopping said revolvable element and as a consequence said recessed member substantially at predetermined critical positions of said element and member, a motor, connecting means between said motor and said revolvable element including yielding means adapted to permit continued rotation of the motor upon stoppage of the revolvable element by said stop means, and means for throwing said motor and said stop means into and out of operation.

2. In an apparatus of the class described, the combination of a recessed member adapted to support a golf ball thereon, a revolvable element operatively connected with said recessed member and adapted to successively raise and lower it, stop means effective when thrown into operation for stopping said revolvable element and as a consequence said recessed member substantially at predetermined critical positions of said element and member, a motor, connecting means between said motor and said revolvable element including a friction clutch which is adapted to yield permitting continued rotation of the motor upon stoppage of the revolvable element by said stop means, and means controlled by a ball on said recessed member for throwing said motor out of operation and said stop means into operation at about the time said recessed member reaches its critical position.

3. In an apparatus of the class described, the combination of a recessed member adapted to support a golf ball thereon, a revolvable element operatively connected with said recessed member and adapted to successively raise and lower it, latch means effective upon an operative stroke

for stopping said revolvable element and as a consequence said recessed member substantially at predetermined critical positions of said element and member, a motor, connecting means between said motor and said revolvable element including yielding means adapted to permit continued rotation of the motor upon stoppage of the revolvable element by said latch means, and means controlled by a ball in position on said recessed member for throwing said motor out of operation and for giving said latch means an operative stroke at about the time the recessed member reaches its critical position.

4. In an apparatus of the class described, the combination of a recessed member adapted to support a golf ball thereon, a revolvable element operatively connected with said recessed member and adapted to successively raise and lower it, means adapted automatically to deliver a ball to said recessed member upon a downward stroke thereof, latch means effective upon an operative stroke for stopping said revolvable element and as a consequence said recessed member substantially at predetermined critical positions of said element and member, a motor, connecting means between said motor and said revolvable element including a friction clutch which is adapted to yield permitting continued rotation of the motor upon stoppage of the revolvable element by said latch means, and means controlled by a ball in position on said recessed member for throwing said motor out of operation and for giving said latch an operative stroke at about the time the recessed member reaches its critical position.

5. In an apparatus of the type described, the combination of a recessed member adapted to support a golf ball thereon, a revolvable element operatively connected with said recessed member and adapted to successively raise and lower it, stop means effective when thrown into operation for stopping said revolvable element and as a consequence said recessed member substantially at predetermined critical positions of said element and member, a motor, connecting means between said motor and said revolvable element including yielding means adapted to permit continued rotation of the motor upon stoppage of the revolvable element by said stop means, a photoelectric cell, means for directing a ray of light on said cell and so arranged that a golf ball supported by said recessed member in its critical position cuts off the ray of light from access to the cell, and means connected with said cell serving to start said motor and to throw said stop means out of operation when the ball is removed from said recessed member in its critical position and to throw the motor out of operation and the stop means into operation when a ball is again positioned on the recessed member in its critical position.

JOHN F. BLASKI.