United States Patent [19]

Swanson

[11] **3,880,431**

[45] **Apr. 29, 1975**

[54] **GOLF TRAINING AND PRACTICE DEVICE**

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[22] Filed: **Aug. 13, 1974**

[21] Appl. No.: **496,956**

[52] **U.S. Cl.** ..... **273/183 B**; 273/200 B

[51] **Int. Cl.** **A63b 69/36**

[58] **Field of Search** 273/183, 188, 190, 189, 273/186, 184, 185

[56] **References Cited**

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[57] **ABSTRACT**

A golf practice and training device in which an outer end of an activating arm engages the forehead of a golfer and serves to trigger the withdrawal of a simulated ball out of the path of a club head in response to excessive movement of the golfer's head during execution of the golf swing. In one embodiment, movement of the ball is triggered mechanically when a detent mechanism is displaced by movement of the activating arm. In another embodiment, the ball is withdrawn upon the energization of an electric solenoid which is actuated in response to axial movements of the actuating arm.

6 Claims, 7 Drawing Figures

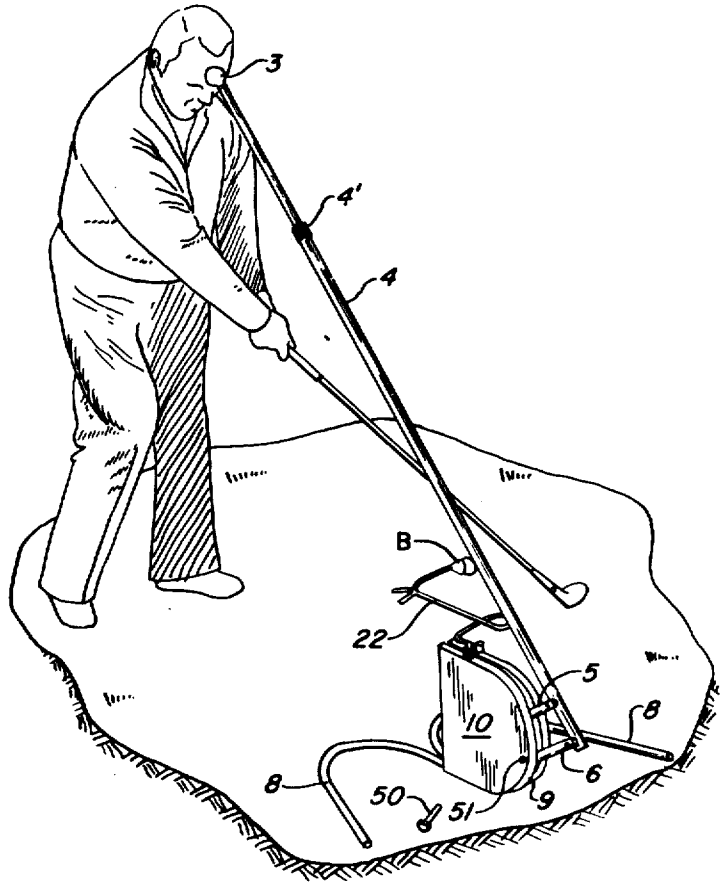


FIG. 1

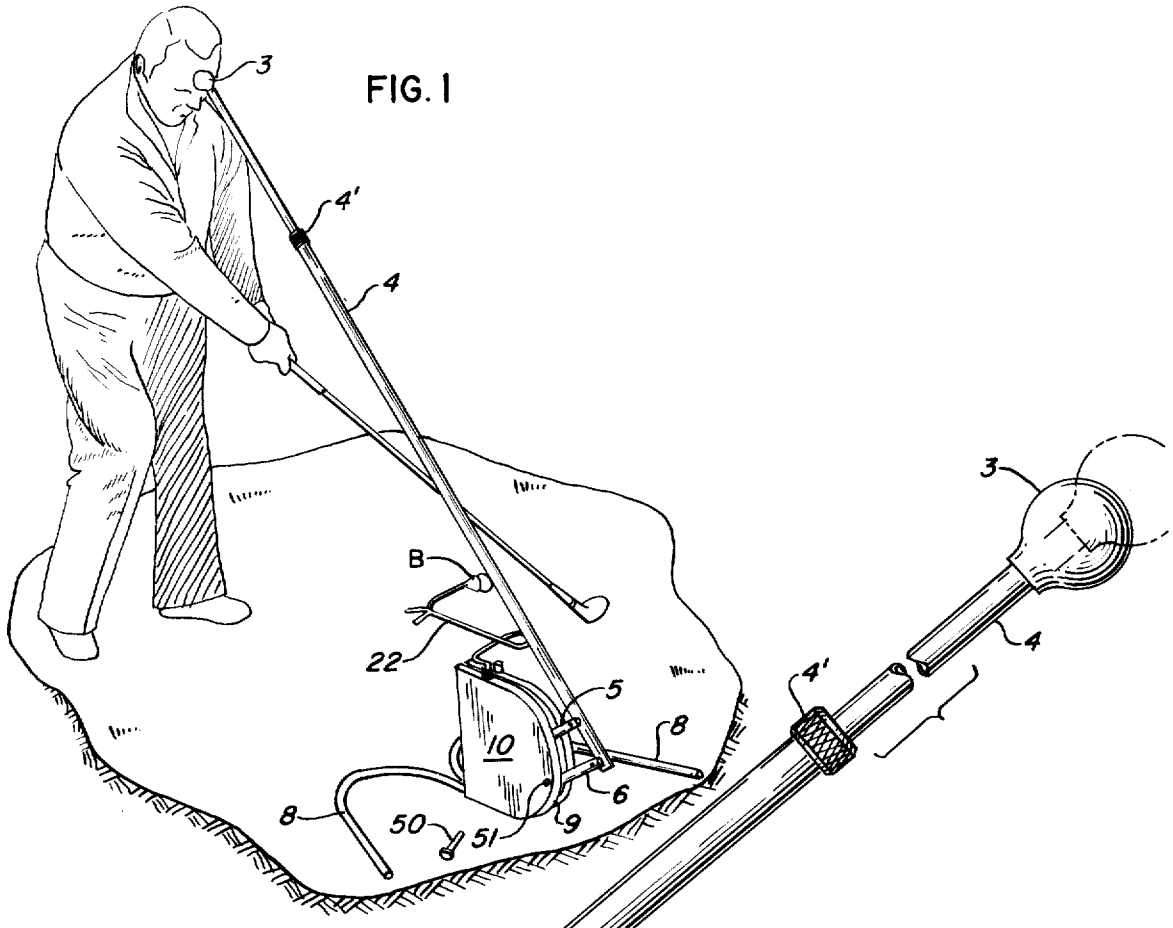

3
4'
4
B
22
5
10
8
6
9
50
51
3
4
4'

FIG. 3

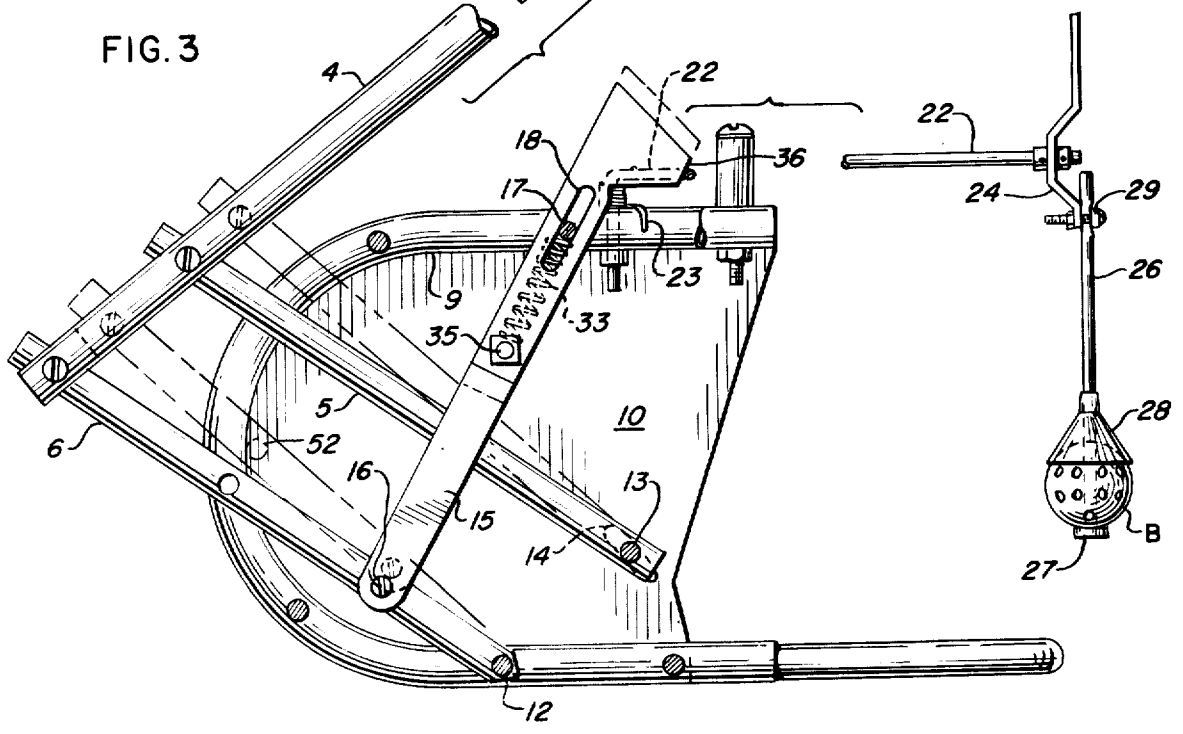
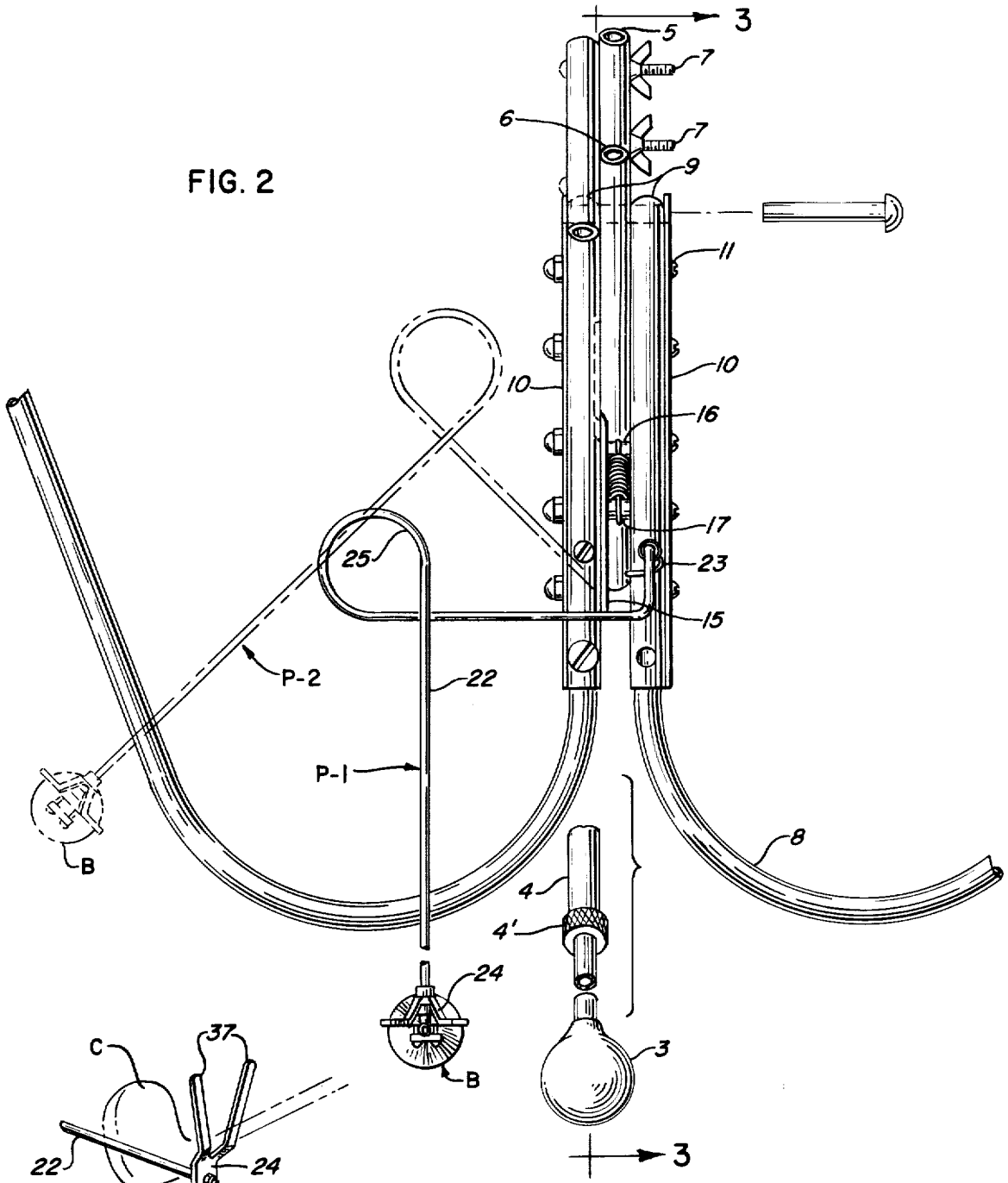

4
22
18
36
17
23
9
33
35
5
52
16
15
13
14
10
6
12
22
24
29
26
28
B
27

FIG. 2



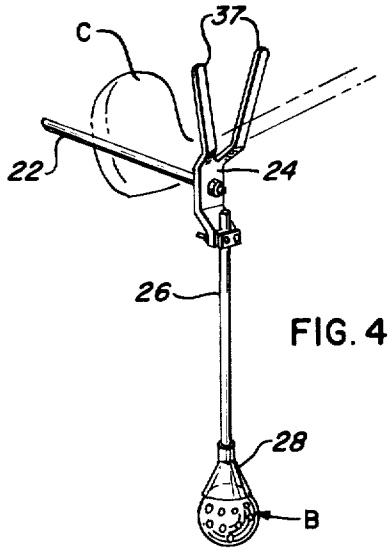


FIG. 4

FIG. 5

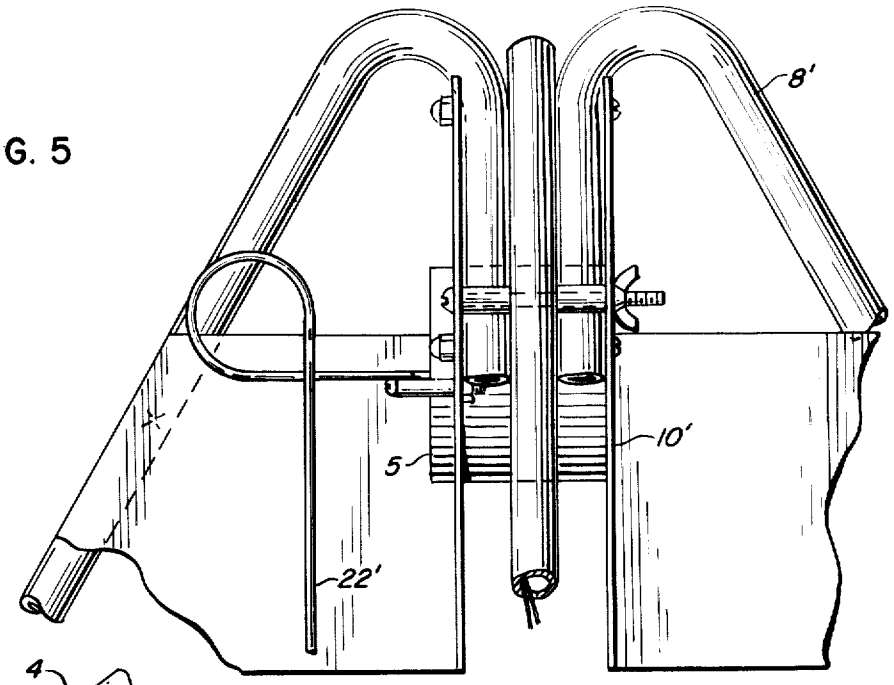


FIG. 6

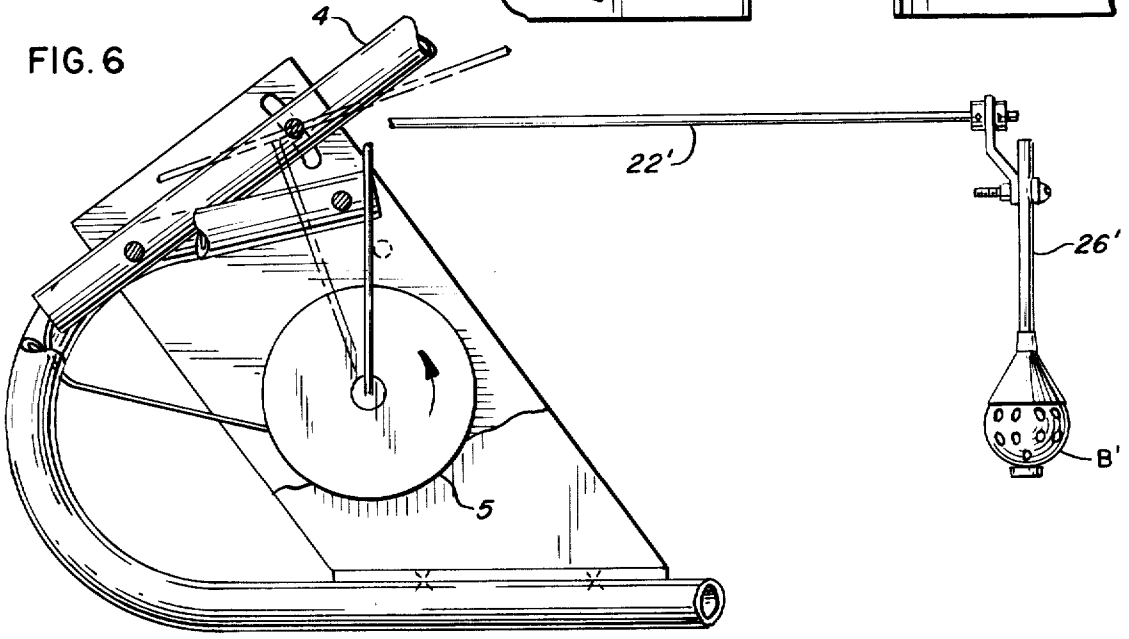
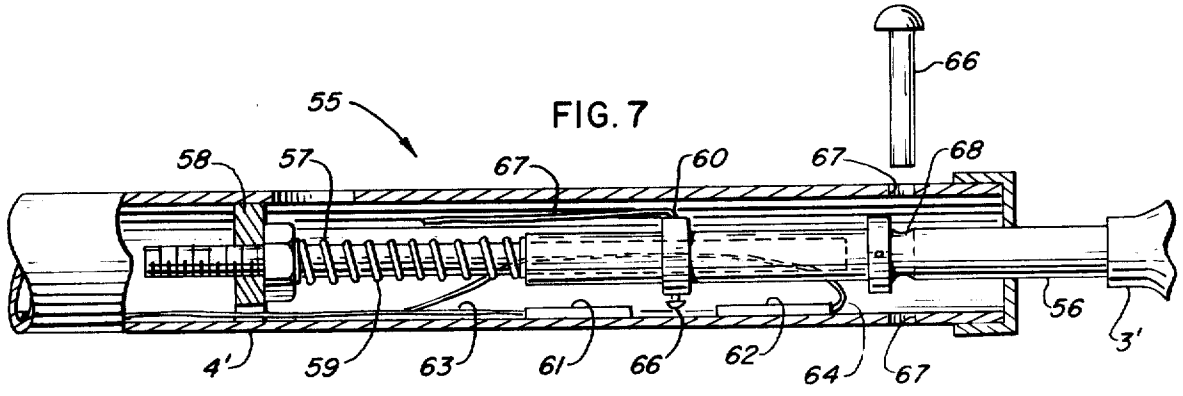


FIG. 7



GOLF TRAINING AND PRACTICE DEVICE

BACKGROUND OF THE INVENTION

Devices of the prior art largely function to physically restrain a golfer's head from swaying or shifting away from a prescribed position or area of permissable motion. At least one device is known which allows the golfer to detect movement of his head by the feel of a flexible rod placed in contact with his forehead. Another such restraining device reacts to the striking of the golf ball by lifting the restraining device away from the golfer's head. However, none of these restraining devices permits the golfer to control his head movement and yet provide a positive reaction in case of his failure to do so properly.

The present invention requires that the golfer adjust and train himself to take the proper swing, particularly with regard to head movement. it It considered more effective that the golfer should feel and control his own movement and train himself, rather than being forced into assuming a prescribed position. In accordance with the present invention a proper swing, with minimum head movement, permits a successful striking of the ball. However, too much head movement is penalized by the ball being withdrawn from the hitting position.

SUMMARY OF THE INVENTION

The golf training device according to the present invention includes an activating arm, one end of which, when in use, is maintained against the golfer's forehead. The arm extends downward and away from the golfer's head position at this one end and its lower end is supported in a base for approximate axial movement. This lower end of the arm is operatively connected to a detent mechanism which maintains a golf ball-supporting arm in a position to present a simulated golf ball in the path of the golfer's normal swing. A biasing means is provided to swing the golf ball out of that position when the detent means, reacting to axial movement of the activating arm in either direction, releases the golf ball supporting arm. A second biasing means keeps the activating arm lightly in contact with the golfer's forehead.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a pictorial view of the device according to the invention and a golfer using the device, said view being taken at an instant just following the golfer's having successfully struck the simulated ball without having made the fault of moving his head during the swing;

FIG. **2** is a top view of said device;

FIG. **3** is a front-to-back vertical section, taken as indicated by lines **3—3** in FIG. **2**;

FIG. **4** illustrates the use of the head end of a golf club to effect cocking of the ball-actuating detent mechanism;

FIG. **5** is a plan view of an alternate embodiment of the invention wherein the ball-supporting mechanism is electrically operated;

FIG. **6** is a left-hand side view of the modified version shown in FIG. **5**; and

FIG. **7** is an axial section through the outer end of the actuating arm of the device shown in FIGS. **5** and **6**.

DESCRIPTION OF THE PREFERRED EMBODIMENT

The golfer pictured in FIG. **1** is in a position facing the device according to the invention, and is successfully completing a swing at a simulated ball target B.

With the device having been adjusted for one's particular height as described hereafter, the golfer takes a position with forehead in slight pressure contact against a rubber ball **3** mounted on the outer free end of an activating arm **4**, which is telescopically adjustable in length by means of a clamping nut assembly **4'**. Arm **4** extends downwardly and away from the golfer, and in this preferred embodiment is supported by a parallelogram mechanism having a first arm **5** and parallel therewith a second arm **6**. The first arm **5** is pivotably connected to arm **4** near the lower end thereof and the second arm **6** is pivotally connected thereto closer to its lower end, the parallelogram arms being separated by a predetermined distance as shown, and being so connected by bolts **7**.

The parallelogram arms **5** and **6** operate within a supporting base having mirror-imaged feet **8** and uprights **9**. The uprights **9** are upstanding U-shaped tubes having their open ends facing the golfer. Ancillary to the supporting base are shrouds **10**, which are shaped plates attached to the outside of each of the uprights **9** by bolts **11**. The second parallelogram arm **6** is pivotally connected to the uprights **9** by means of a bolt **12** extending through the uprights **9**, and the first parallelogram arm **5** is pivotally connected to the uprights by bolt **13**. A curved slot **14** is provided in each of the shrouds to accomodate the bolt **13**, the purpose of which will be explained hereafter. Thusly constructed, the parallelogram provides for approximately axial movement of the activating arm **4**.

A cam **15** has its lower end pivotally connected to the lower arm **6** at **16**. The upper end of this cam is slidably restrained by a bolt **17** passing through the uprights **9** and through a slot **18** in the cam.

A ball-supporting arm **22** is pivotally mounted in the right-hand upright **9** for horizontal swinging movement from a predetermined cocked position P-**1** to a withdrawn position P-**2** as shown in phantom lines in FIG. **2**. A torsion spring **23** biases the arm **22** from the cocked position P-**1** to the withdrawn position P-**2**. The cam lever **15**, however, when in what is its "cocked" position as shown in FIG. **3**, prevents the supporting arm **22** from any movement under the influence of spring **23**. A swinging arm **24** is pivotally mounted to and extends vertically from the supporting arm **22**. By means of a loop **25**, the golf ball supporting arm takes a right angled turn toward the golfer. Arm **24** is clamped to a downwardly extending rod **26** which in turn supports affixed members **27** and **28**, which clamp the simulated plastic ball B between them.

A spring **33** extends between the bolt **17** and a lug **35** on the cam lever **15**, whereby it tends to move the parallelogram arms **5** and **6** in a direction to move the arm **4** axially outwardly.

When a golfer's forehead is placed against the ball **3** at the end of the arm **4**, it is generally desirable that little force should be exerted against the arm **3**, although this may vary from user to user. The length of the arm **4** and its angle of repose will affect the force resulting from the spring **33**. This force may therefore be adjusted by extending or compressing the spring **33** by changing the position of its lower lug **35**. It is desirable that the tension of the spring **33** be such that the activating arm **4** will move upwardly by itself when the golfer is not engaging it, but at the same time, will per-

mit downward movement with only slight additional pressure.

The angle of repose and length of the activating arm **4** can be finely adjusted. By loosening the bolt **13**, sliding it to the rearmost upper position and tightening it, the activating arm **4** will move angularly to a higher vertical position, and by sliding the bolt **13** to its forwardmost position, the activating arm will pivot downwardly to a more acute angle to the horizontal. Selection of the height and length of the telescoping activating arm **4** is achieved by means of the threaded clamp **4**, as previously mentioned.

The rod **26** may desirably be a semi-rigid plastic such as polyurethane. The height of the ball above the ground is adjustable by moving the rod up or down in the clamp **29**. Shock of the ball being struck is desirably absorbed by means of the loop **25** in the supporting arm **22**.

When not in use, the parallelogram arms **5** and **6** are locked in place, for ease of handling, by means of a removable pin **50** inserted in holes **51** and **52** in uprights **9**, shrouds **10** and parallelogram arm **6**.

The operation of the golf training device will now be described. The device is illustrated in its cocked position in solid lines in FIG. **3**. By the term "cocked," it is meant that with a golfer's forehead steadily positioned against the ball **3**, cam **15** will obstruct rearward movement of golf ball supporting arm **22**. In this position, simulated golf ball B will hang in a predetermined position, to be hit by the golfer's club C. A proper positioning of the ball in relation to the golfer is achieved by the telescoping segments of the activating arm **4** and fine adjustment of the bolt **13** in slot **14**. When the golfer swings his or her club C to hit the ball B, it must be done with a minimum of movement of one's head. Any appreciable movement of the golfer's head will cause the activating arm **4** to move axially, either inwardly or outwardly. This will move the parallelogram arms **5** and **6**, and consequently the cam lever **15** will move upwardly or downwardly. As long as the detent surface **36** remains in contact with supporting arm **22**, however, the ball B will remain in the "striking" position. If the golfer's head is moved forwardly too far, the detent surface **36** will disengage from the supporting arm **22** permitting it to pivot abruptly under the influence of the torsion spring **23**. Thusly the golf ball will be suddenly withdrawn away from its striking target position. Re-cocking of the device is effected first by the golfer re-positioning one's self with the forehead pressing lightly against ball **3** and using the golf club C, placed between ears **37** (FIG. **4**), to move arm **22** and cam lever **15** relatively into the solid line position of FIG. **3**.

DESCRIPTION OF ALTERNATIVE EMBODIMENT

In an alternative embodiment shown in FIGS. **5, 6** and **7**, parts having functions equivalent to those described with reference to previous FIGS. **1–4** will be identified by primed (') reference numerals. In this alternative embodiment, the ball supporting arm **22'** is operated by a rotary solenoid **5**, instead of a mechanical means such as the spring **28** and cam lever **15**. Solenoid **5** is energized by means of a self-contained battery (not shown) through a circuit controlled by a two-pole switch **55** in the telescopic activating arm **4'**. Ball **3'** is mounted on a cylinder **56** which is telescopically movable over an inner rod **57** which is anchored against a plug mounting **58** in the main tube of arm **4'**. A spring **59** biases the ball **3'** and cylinder **56** outwardly (just as spring **33** biases the parallelogram arms **5** and **6**). The switch **55** comprises axially spaced buss bars or contacts **61** and **62** which are connected in parallel in the circuit, respectively, by lead-in wires **63** and **64**, and a movable element **60** having a contact brush **66** adapted to make contact with either of said contacts **61, 62**, depending upon the direction of its displacement. Contact **66** is connected to the other terminal of the battery (not shown) by another lead-in wire **67** running through the arm **4'**. A pin **66** extends through a hole **67** and engages with a detent groove to prevent completion of a circuit when the device is not in use.

The operation of the device shown in FIGS. **5–7** is similar to that of the previously described device in that appreciable movement of the ball **3'** either outwardly or inwardly will close the switch **55** and effect energization of solenoid **5** to lift ball B' upwardly and out of the path of the swing of the golfer.

It will be understood that various departures from the specifically disclosed embodiments of the invention can be effected without departing from the scope of coverage thereof, as defined by the following claims:

I claim:

1. A golf training and practice device comprising a supporting structure, an actuating arm, means mounting said arm on said supporting structure for movement in directions toward and away from the head of a golfer standing in a golfing position opposite said supporting structure, means biasing said arm into engagement with the golfer's head, a member representing a simulated golf ball target, means supporting said target member on said supporting structure for movement between a first position wherein it is in a position to be struck by the golfer with a golf club and a second position wherein it is withdrawn away from the path of the golf club, and actuating means connecting said arm and the last-mentioned target member supporting means, said actuating means being responsive to movement of said arm to move said target member from said first to said second position.

2. A device according to claim **1**, wherein said target member supporting means includes means biasing said target member toward said second position, and said actuating means includes a mechanical detent mechanism adapted to be cocked to maintain said target member in said first position against the force of the last-mentioned biasing means, said actuating arm being connected to said detent mechanism and operable to uncock the same in response to movement of the actuating arm due to forward or backward movement of the golfer's head, thereby to effect release of said target member and movement thereof to said second position.

3. A device according to claim **1**, wherein said actuating means comprises an electrical energizing circuit, an electrically actuated means for moving said target member, and switching means responsive to movement of said activating arm to energize said electrically actuated means through said circuit.

4. A device according to claim **3**, wherein said electrically actuated means comprises a solenoid operatively connected between said actuating arm and said target member.

5. A device according to claim **1**, wherein said actuating arm extends upwardly and outwardly from said

first-mentioned supporting means and has an outer free end positioned to engage the forehead of the golfer.

6. A device according to claim 5, wherein said actuating means comprises a mechanical detent mechanism adapted to be cocked to retain said target member in said first position, said actuating arm being connected to said detent mechanism and operable to uncock the same in response to movement of the actuating arm due to forward or backward movement of the golfer's head during the golf swing, thereby to move said target member to said second position.

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