United States Patent [19]

Straus

[11] **3,770,280**

[45] **Nov. 6, 1973**

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

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[22] Filed: **July 5, 1972**

[21] Appl. No.: **269,173**

[52] **U.S. Cl.** ..... **273/183 B,** 273/190 R, 273/195 A, 273/186 B

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

[58] **Field of Search** 273/190, 195, 186

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Primary Examiner—George J. Marlo

[57] **ABSTRACT**

A golf training and practice device for instructing a golfer to maintain his head in a fixed position during his golf swing is provided. The golf training and practice device comprises a headpiece for wear by a golfer using the training device, a support, and an electromagnet mounted on the support for releasably engaging a magnetic plate on the headpiece to hold the head of the golfer in a predetermined position and to indicate undesirable head movement during his golf swing. Either the magnetic plate or the electromagnet may be rotatably mounted to permit rotation of the golfer's head. Suitable electrical components may be provided so that (1) the electromagnet will be energized in response to the weight of a golf ball on a golf tee, and (2) the electromagnet will be de-energized upon displacement of the golf ball from the tee.

12 Claims, 7 Drawing Figures

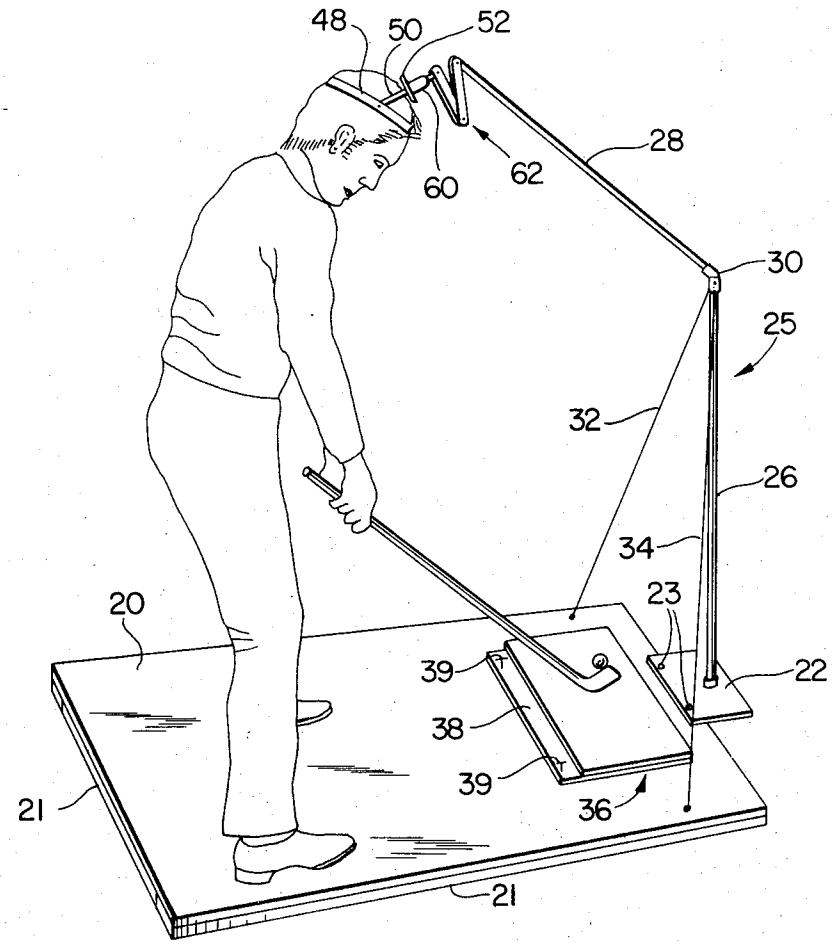


FIG. 1

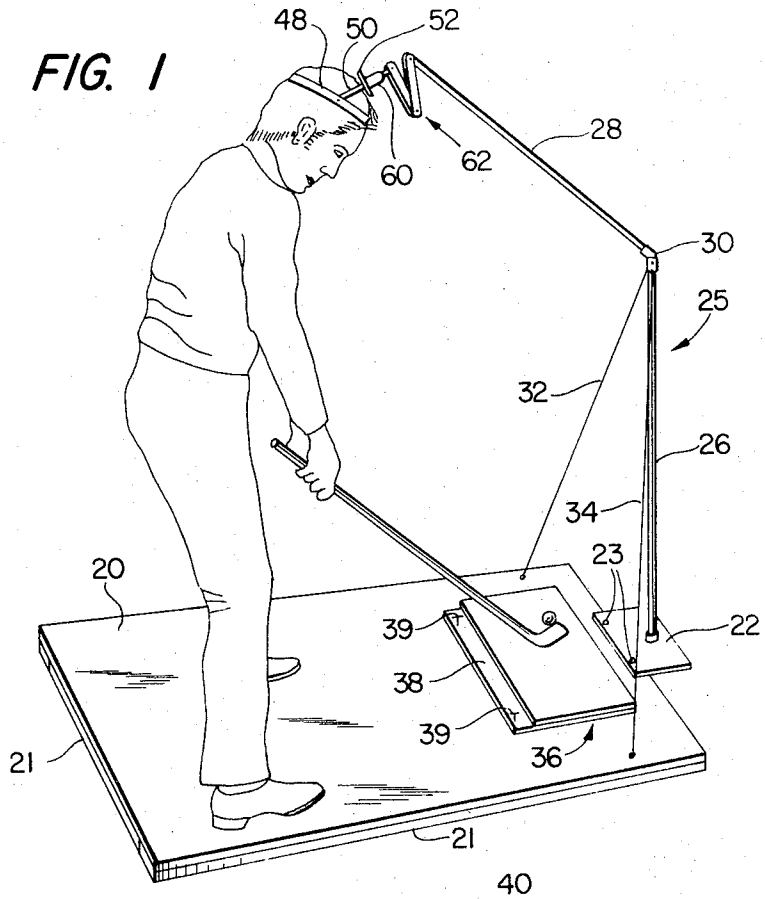

48
50
52
28
60
62
30
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26
34
23
20
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39
38
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36
21
21

FIG. 2

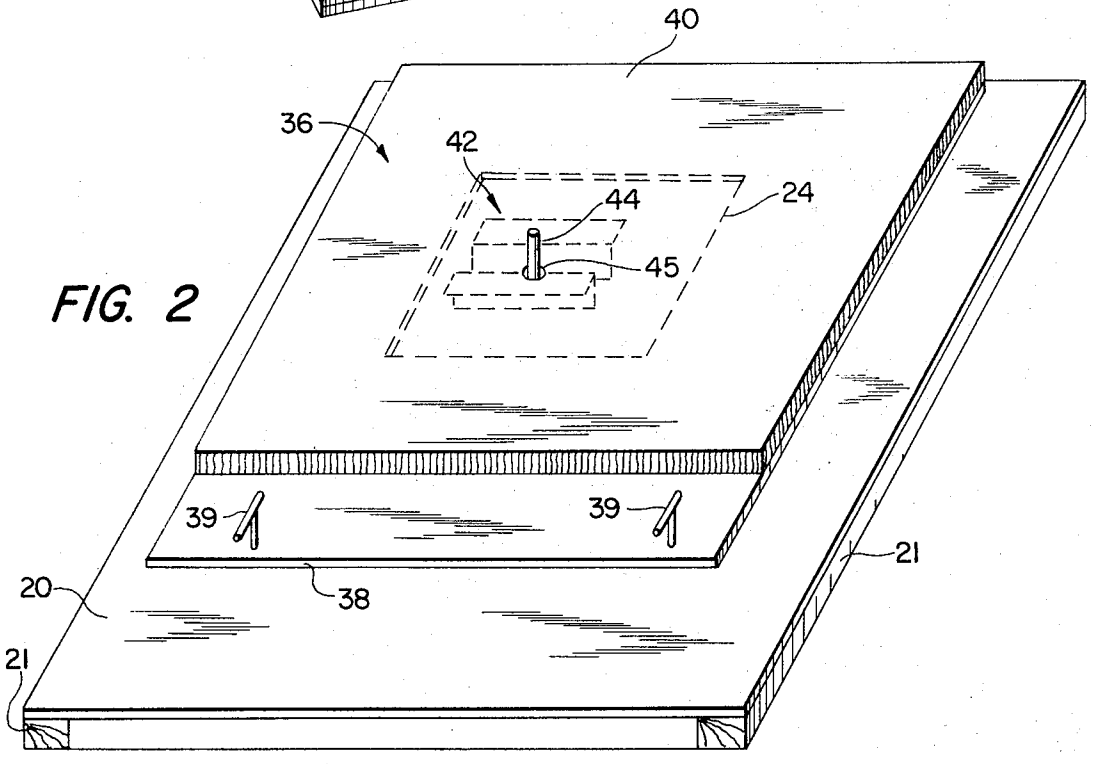

40
36
42
24
44
45
39
39
21
20
38
21

FIG. 3

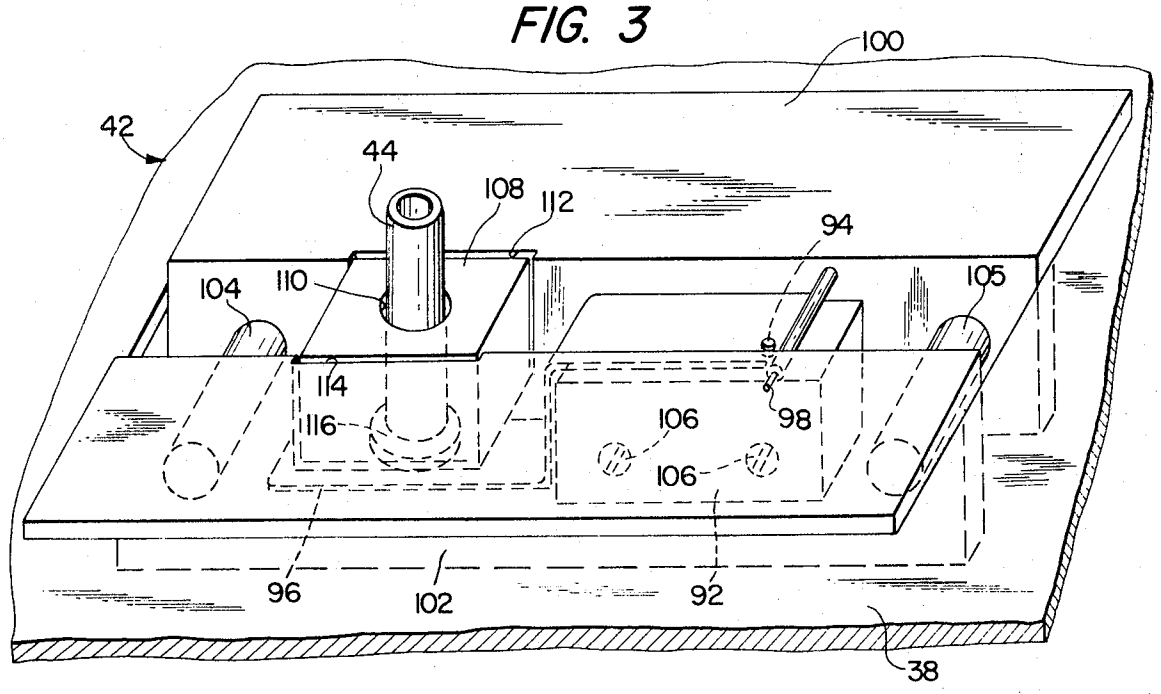
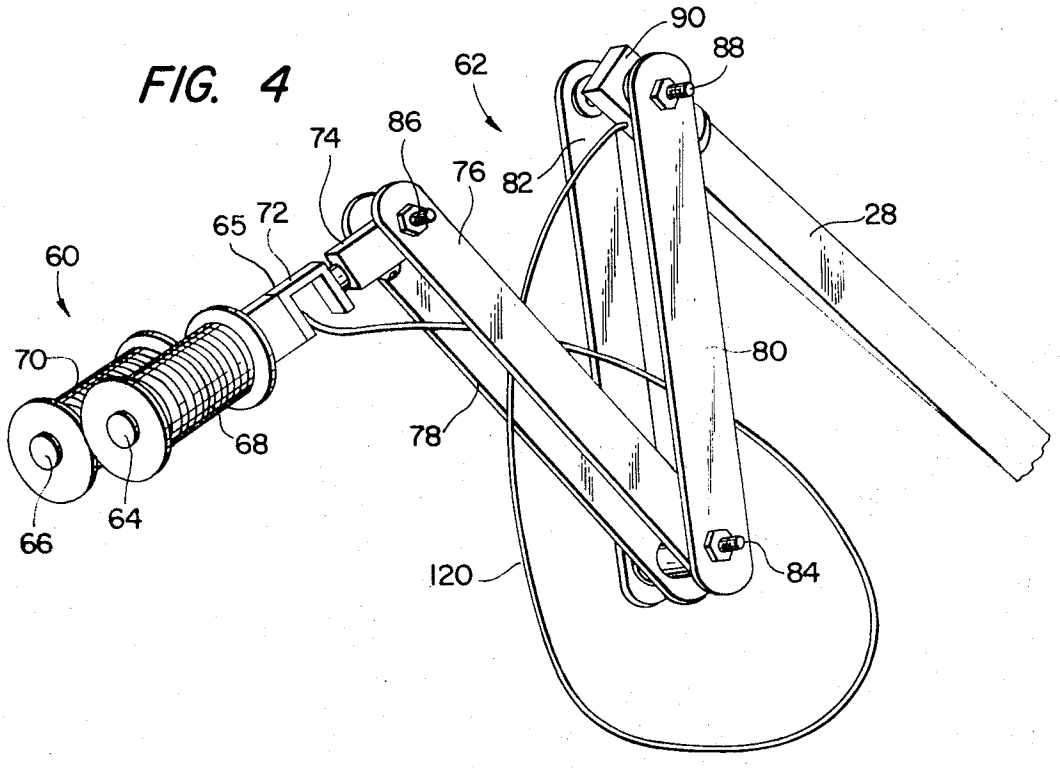

100
42
44
108
112
94
104
110
105
114
116
106
98
106
96
102
92
38

FIG. 4


90
88
62
74
86
76
82
65
72
28
60
70
80
68
78
64
66
120
84

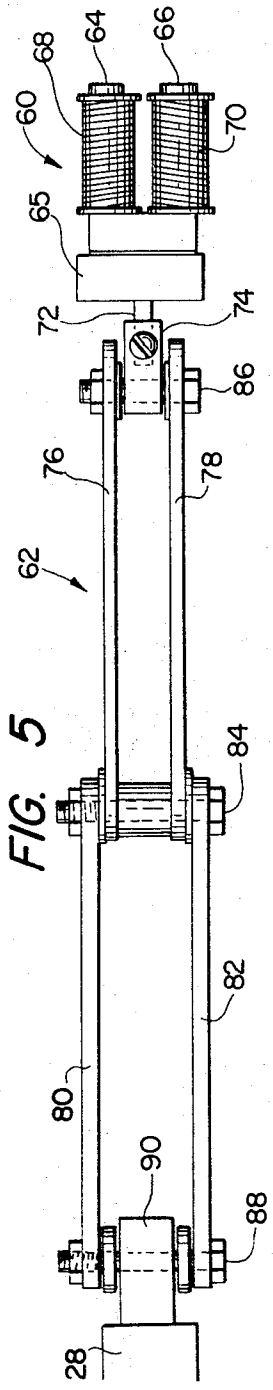


FIG. 5

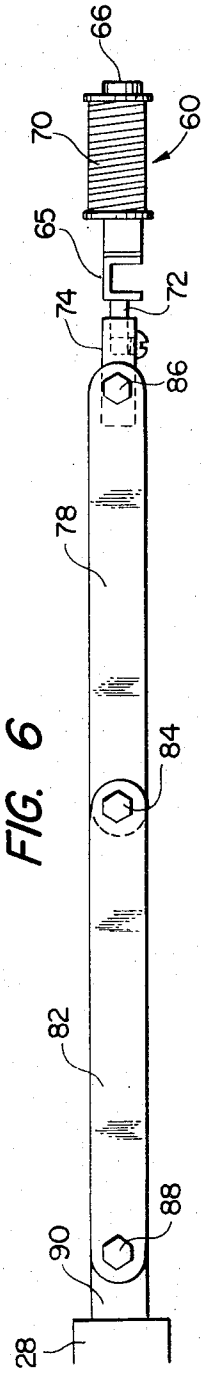


FIG. 6

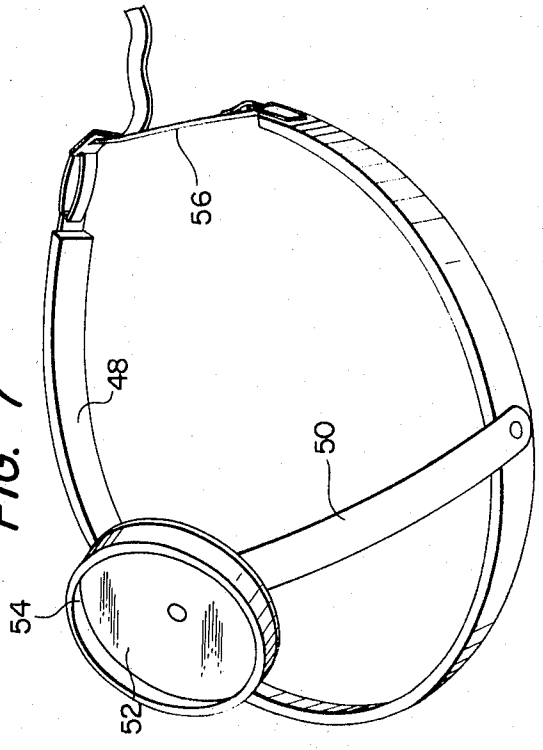


FIG. 7

GOLF TRAINING AND PRACTICE DEVICE

The present invention relates to a golf training and practice device and, more particularly, to a golf training and practice device for use in instructing a golfer to maintain his head in a fixed position during his golf swing.

In the development of a proper golf swing, it is fundamental that a golfer use his head as the fulcrum of his golf swing. Thus, it is important that the golfer maintain his head in a fixed position while taking his golf swing. The golfer's head should not move either vertically or horizontally but should remain in a fixed position with the only movement being a turning of the head forward for sighting purposes or a turning of the head in either direction to accommodate the natural movements of his body.

Although golf training devices have been developed in the prior art for the purpose of controlling head movement by a golfer during his golf swing, the prior art devices have been unnecessarily cumbersome and complicated in operation. In addition, the prior art devices have so restrained head movement by the golfer as to present considerable danger of injury to the golfer in the event of sudden head movement. Thus, it is desirable to provide a golf training and practice device that is relatively uncomplicated in both structure and operation. Further, it is highly desirable to provide a golf training and practice device that minimizes the possibility of injury to a golfer using the device.

In accordance with the present invention, a golf training and practice device comprises a headpiece for wear by a golfer using the training device, a support, and means mounted on the support for releasably engaging the headpiece to hold the head of the golfer in a predetermined position and to indicate undesirable head movement during his golf swing. In a preferred embodiment, the headpiece includes an element of magnetic material, and the means for releasably engaging the headpiece comprises an electromagnet. The preferred embodiment also includes a tee mechanism provided with control means responsive to placement of a golf ball on the tee mechanism for actuating the electromagnet.

The present invention provides a golf training and practice device that can be used to assist a golf instructor in teaching a beginner to develop a proper golf swing and in correcting the errors of a more experienced golfer to improve his golf swing. The device is also intended for use by a golfer without the presence of an instructor in obtaining practice to improve his golf game. The device permits the golfer to address his golf ball in the usual manner without a feeling of undue restriction.

The golf training and practice device maintains the head of the golfer in a predetermined position during his golf swing and only inhibits movements by the golfer that will impair the effectiveness of his golf swing. The device indicates undesirable head movement during the golf swing by tugging on the headpiece if the golfer sways leftward or rightward, forward or backward, or raises or lowers his body. The golfer is, however, free to turn his head without restriction and to perform correct body movements to achieve a proper golf swing.

The use of an electromagnet in the preferred embodiment enables the golfer to pull himself away from the training device without undue discomfort. Thus, the golf training and practice device of the present invention has the advantage of eliminating the fear of personal danger or discomfort to the golfer that would exist if the headpiece were fastened more rigidly to the device.

By practicing with the device, the golfer can train himself to maintain his head over the golf ball until the ball has been impacted by his golf club and to use his head as the fulcrum of his golf swing. Once a new golfer has been instructed in the basic fundamentals of the golf swing and the necessary body movements, he can practice without supervision to eliminate possible feelings of self-consciousness, thus minimizing the time required to learn and achieve skill in his golf swing.

The device of the present invention is capable of use either indoors or outdoors. In addition, the golf training and practice device is provided with adjustable features to enable persons differing widely in physical attributes to use the device. Further, the device can be used by either righthanded or lefthanded golfers.

The accompanying drawings illustrate a preferred embodiment of the invention and, together with the description, serve to explain the principles of the invention.

In the drawings:

FIG. 1 is a perspective view of a golf training and practice device constructed in accordance with the principles of the present invention including a base, a mat on the base for supporting a golf ball, a support column extending upward from the base for supporting an electromagnet, and a headband including an element of magnetic material for wear by a golfer using the device.

FIG. 2 is a perspective view of the mat of FIG. 1 illustrating a tee mechanism for supporting the golf ball.

FIG. 3 illustrates the tee mechanism of FIG. 2 in detail.

FIG. 4 is an enlarged perspective view of the support column and electromagnet of FIG. 1 illustrating an adjusting mechanism for mounting the electromagnet on the support column.

FIG. 5 is a plan view of the adjusting mechanism of FIG. 4 illustrating a swivel for connecting the electromagnet to the adjusting mechanism.

FIG. 6 is a side elevation view of the adjusting mechanism of FIG. 5.

FIG. 7 is an enlarged perspective view of the headpiece of FIG. 1 illustrating a plate of magnetic material for engagement with the electromagnet.

Referring to FIG. 1, the golf training and practice device includes a rectangular base **20** of plywood or other suitable material mounted on a frame comprising a plurality of elongated wooden members **21.** A plate **22** is mounted along one edge of base **20** and is secured to the base by a pair of bolts **23.** As shown in FIG. 2, base **20** is provided with a rectangular opening **24.**

The golf training and practice device includes a support or column **25** comprising a lower rod **26** extending upwardly from plate **22,** and an upper rod **28** connected by a coupling **30** to lower rod **26** and inclined relative to the lower rod. A pair of guys **32** and **34** are connected to coupling **30** and anchored on opposite sides of base **20** to steady support column **25.**

A preferred embodiment of the golf training and practice device includes means located on the base for supporting a golf ball. As shown in FIG. 1, the golf ball

support means is embodied as a mat **36** slidably mounted on base **20.** Referring to FIG. **2,** mat **36** includes a plate **38** of metal or other rigid material having a carpet-like covering **40** of rubber or other resilient material to provide a surface from which a golf ball may be driven with a golf club. A pair of T-shaped handles **39** project upward from plate **38** to enable the golfer to slide the plate across base **20** by engaging the handles with his golf club. In addition, mat **36** includes a tee mechanism, generally **42,** extending downward into opening **24** provided in base **20** and having a tee **44** projecting upward through an opening **45** provided in carpet-like covering **40.**

In accordance with the invention, the golf training and practice device includes a headpiece for wear by a golfer using the training device. Referring to FIGS. **1** and **7,** in a preferred embodiment, the headpiece comprises a headband **48** of non-magnetic material, e.g., plastic or non-magnetic stainless steel, a strap **50** of non-magnetic material extending between opposite sides of the headband, and an element of magnetic material in the form of a circular plate or disc **52.** The material of disc **52** is preferably soft iron or other material which is readily and strongly attracted by a magnet and which loses its magnetism promptly when it is not in a magnetic field.

As shown in FIG. **7,** disc **52** includes a raised edge **54** extending around its periphery. Headband **48** includes an adjusting strap **56** to permit the headband to be adjusted to heads of different sizes. The headband can be lined with a foam material to provide comfort for the golfer.

In accordance with the invention, the golf training and practice device also includes means mounted on the support for releasably engaging the headpiece to hold the head of the golfer in a predetermined position and to indicate undesirable head movement during his golf swing. In a preferred embodiment of the invention, this means comprises a magnet mounted above the base to engage the element of magnetic material of the headpiece upon movement of the golfer into a position to address the golf ball. As shown in FIG. **1,** an electromagnet **60** is mounted on rod **28** of the support column by an adjusting mechanism **62.** The electromagnet, when energized, engages plate **52** of the headpiece to hold the head of the golfer in a fixed position during his golf swing. Raised edge **54** (FIG. **7**) of plate **52** prevents the electromagnet from slipping off the edge of the plate.

Referring to FIG. **5,** electromagnet **60** includes a pair of parallel cores **64** and **66** on which a pair of magnetic windings **68** and **70,** respectively, is provided. The electromagnet is mounted on a U-shaped or horseshoe frame **65** rigidly fastened to a rod **72** centered between and parallel to cores **64** and **66** of the electromagnet. Rod **72** is rotatably mounted within a recess provided in a block **74** to provide a swivel connection between electromagnet **60** and adjusting mechanism **62** to permit the golfer to turn his head in either direction prior to his impacting the golf ball with his golf club.

In an alternative embodiment, the swivel connection between the electromagnet and adjusting mechanism can be eliminated and the element of magnetic material can be rotatably mounted on the headpiece. This alternative embodiment can be achieved by fastening frame **65** (FIGS. **5** and **6**) directly to block **74** and by rotatably mounting plate **52** (FIG. **7**) on strap **50.** In this alternative embodiment, the rotatable plate permits the golfer to turn its head in either direction prior to impact of the golf ball by his golf club.

Adjusting mechanism **62** (FIGS. **4** and **5**) comprises a first pair of arms **76** and **78** pivotally connected to a second pair of arms **80** and **82** by a first bolt **84** extending through corresponding openings provided in the arms. A second bolt **86** extends through additional openings provided in arms **76** and **78** and through an opening provided in block **74** to support the block for pivotal movement about the axis of the bolt. A third bolt **88** extends through additional openings provided in arms **80** and **82** and through an opening provided in an extended end **90** of rod **28** of support column **25** to pivotally connect arms **80** and **82** to the support column. The two pairs of arms in adjusting mechanism **62** and block **74** permit the adjustment of electromagnet **60** to a desired height and thus allow the golf training and practice device to accommodate golfers of different height.

In a preferred embodiment of the invention, control means responsive to placement of the golf ball on the golf ball support means is provided for actuating the electromagnet. Referring to FIG. **3,** the control means is embodied in tee mechanism **42** as a snap action electric switch **92** including a plunger-like actuator **94** and a lever **96** which supports tee **44** and is mounted for pivotal movement relative to the switch **92** by a pivot pin **98** received in openings provided in a pair of L-shaped mounting brackets **100** and **102.** The mounting brackets are connected by a pair of spacers **104** and **105.** Switch **92** is mounted in the space between brackets **100** and **102** by means of bolts **106** or other suitable fastening elements.

Referring to FIGS. **2** and **3,** the horizontal portions of L-shaped brackets **100** and **102** are mounted on plate **38** beneath carpet-like covering **40** and the vertical portions of the L-shaped brackets are received in a rectangular opening provided in the plate. The vertical portions of L-shaped brackets **100** and **102** are also received in rectangular opening **24** provided in base **20.** Rectangular opening **24** is sufficiently large to allow lateral movement of the tee mechanism upon sliding of mat **36** across base **20.**

Lever **96** (FIG. **3**) is normally urged into an upward position by means of a compression spring contained internally within switch **92** and used to bias actuator **94** upward. If desired, an additional external spring can be provided to supplement the operation of the spring built into switch **92.** A tee holding block **108** provided with a vertical opening **110** is located within recesses **112** and **114** formed in the vertical portions of L-shaped brackets **100** and **102,** respectively.

Tee **44** is made of tough rubber or rubber-like material and is essentially a tube having a flange **116** formed at its lower end. When inserted in opening **110** of block **108,** tee **44** is free to move upward until restricted by its flange **116.** The tee rests on lever **96** and its weight is not sufficient to depress the lever or to prevent the lever from returning to its normal upward position after it has been depressed.

When a golf ball is placed on tee **44,** a sufficient downward force results to depress lever **96** and to actuate switch **92** via actuator **94.** The switch is connected in series with electromagnet **60** and a low voltage, direct current source, e.g., one or more dry cells or batteries (not shown). If support column **25** is constructed

of conductive material, e.g., metal, it can serve as a ground conductor for the electromagnet. In this case only one wire, e.g., conductor **120** (FIG. **4**), is required to complete the electrical circuit with switch **92** and the low voltage, direct current source. Upon displacement of the golf ball from tee **44**, lever **96** returns to its normal upward position to disengage actuator **94** and de-energize the electromagnet.

In operation, the golfer adjusts headband **48** to be comfortable and secure on his head. After securing the headband, the golfer assumes the proper stance on base **20** for taking his golf swing. He then adjusts the position of electromagnet **60** to contact plate **52** on headband **48.**

The golfer then places a golf ball on tee **44.** As explained above, the weight of the golf ball depresses operating lever **96** to actuate switch **92** and energize electromagnet **60.** He then returns to the correct position for addressing the golf ball and guides plate **52** into contact with electromagnet **60.** Alternatively, the golfer may have another person place the golf ball on tee **44** to avoid the necessity of moving away from the electromagnet.

The golfer can then adjust the position of the golf ball by using his golf club to contact handles **39** on mat **36.** Alternatively, he can have another person move the mat to locate the golf ball in the desired position.

During his golf swing, the head of the golfer is maintained in a fixed position by electromagnet **60** which is energized to hold plate **52** until the golf ball is displaced from tee **44.** In the event that the golfer moves his head vertically or horizontally from the fixed position, he will notice a holding force on his headband. The holding force exerted by electromagnet **60** is sufficient to resist a slight pull resulting from movement of his head and thus warns the golfer if he is making undesirable head movement during his golf swing. It is possible, however, for the golfer to pull himself away from the energized electromagnet without undue discomfort. Thus, the device has the advantage to the golfer of eliminating the fear of personal danger or discomfort that would exist if the headband were fastened more rigidly to the training device.

The pull exerted by electromagnet **60** on plate **52** can be regulated by changing the number of dry cells used in the series circuit or by varying the voltage of a direct current source used in the circuit. The pull can thus be varied from a gentle attraction of plate **52** by electromagnet **60** to an attraction so strong that it is difficult to pull the plate away from the electromagnet. The ability to control the attraction of the electromagnet for the plate is an advantageous feature for a beginner to enable him to overcome possible fear of personal danger or discomfort when the device is first used. In addition, it permits a golfer to regulate the ridigity with which the headpiece is held to suit his personal preference.

Upon impact of the golf ball by the golf club to displace it from tee **44,** lever **96** is biased upward to disengage actuator **96** of switch **92** and to de-energize electromagnet **60.** The de-energization of the electromagnet releases the golfer from the holding action on plate **52** of his headband so that he is free to move his head and body in any direction without restraint.

The golf training and practice device can be modified by reducing the size of base **20** to permit the golfer to stand on the ground or other surface. In addition, the device can be modified to permit support column **25** to be driven directly into the ground or to be supported independently in some other manner. When base **20** is independent of the surface on which the golfer stands and is not connected to the support column, the base can be supported on a sloping surface or inclined to stimulate actual conditions encountered in a golf game, e.g., when the golfer is required to swing at the golf ball from a point above or below it or when the golf ball has an uphill or downhill lie. The modifications do not affect the principles of operation of the golf training and practice device.

Although the headpiece of the preferred embodiment of the golf training and practice device is illustrated as comprising headband **48** and strap **50** for supporting plate **52** of magnetic material, it is clear that any type of head gear that is capable of supporting the plate of magnetic material can be used. Thus, for example, a normal head covering such as a hat or helmet made of non-magnetic material can be used in place of the headband to practice the principles of the present invention.

Further, the tee mechanism of the preferred embodiment of the golf training and practice device can be modified so that when the golf ball is placed on tee **44** a slight downward pressure is also required, in addition to the weight of the golf ball, to depress operating lever **96** to actuate switch **92.** This design can be achieved by using a snap action switch having a slightly heavier spring. In this embodiment the weight of the golf ball is sufficient to maintain operating lever **96** in a depressed position, although it is not sufficient to depress the lever without an additional downward push by the person placing the golf ball on the tee.

The invention in its broader aspects is not limited to the specific details shown and described, and additional modifications may be made in the details of the golf training and practice device without departing from the principles of the present invention.

What is claimed is:

1. A golf training and practice device, comprising:

a headpiece for wear by a golfer using the training device;

a support; and

means mounted on said support for lockingly and releasably engaging said headpiece to hold the head of the golfer in a predetermined position and to indicate undesirable head movement during his golf swing, the characteristics of said headpiece and said locking engagement being such as to permit said locking engagement to be released upon said headpiece being pulled away from the device without undue force in response to movement of the golfer's head.

2. The golf training and practice device of claim **1,** wherein:

said headpiece includes an element of magnetic material; and

said means for lockingly and releasably engaging said headpiece comprises a magnet for engagement with said element.

3. The gold training and practice device of claim **2,** wherein said support includes:

a base;

a support column extending upward from said base; and

an adjusting mechanism mounted on said support column for supporting said magnet in an adjustable position relative to said base.

4. The golf training and practice device of claim **3**, which includes:

a swivel device coupling said magnet to said adjusting mechanism to permit rotation of said magnet relative to said adjusting mechanism.

5. The golf training and practice device of claim **2**, wherein:

said headpiece comprises a headband including a strap of non-magnetic material extending between opposite sides of said headband; and

said element of magnetic material comprises a plate of magnetic material mounted on said strap.

6. The golf training and practice device of claim **5**, wherein said plate of magnetic material includes a raised edge extending around its periphery for preventing said magnet from sliding off the edge of said plate.

7. The golf training and practice device of claim **1**, which includes:

a base; and

means located on said base for supporting a golf ball.

8. The golf training and practice device of claim **7**, wherein said means for supporting the golf ball comprises:

a mat slidably mounted on said base; and

a tee projecting upward from said mat.

9. The golf training and practice device of claim **7**, wherein:

said headpiece includes an element of magnetic material; and

said means for releasably engaging said headpiece comprises an electromagnet mounted above said base to engage said element upon movement of the golfer into a position to address the golf ball.

10. The golf training and practice device of claim **9**, which includes:

control means responsive to placement of the golf ball on said golf ball support means for actuating said electromagnet.

11. The golf training and practice device of claim **10**, wherein said golf ball support means includes a tee and said control means comprises:

a switch including an actuator for controlling energization of said electromagnet; and

a lever supporting said tee and mounted for pivotal movement relative to said switch to engage said actuator and energize said electromagnet upon placement of the golf ball on said tee and to disengage said actuator and de-energize said electromagnet upon displacement of the golf ball from said tee.

12. The golf training and practice device of claim **9**, wherein:

said element of magnetic material is rotatably mounted on said headpiece.

* * * * *