United States Patent [19]

Zega

[11] **3,730,531**

[45] **May 1, 1973**

[54] **GOLF SWING PRACTICE DEVICE**

[76] Inventor: **Frank J. Zega,** 130 Eastfield Drive, Fairfield, Conn. 06430

[22] Filed: **Mar. 13, 1972**

[21] Appl. No.: **234,264**

[52] **U.S. Cl.** .....**273/191 A,** 273/187 A
[51] **Int. Cl.** **A63b 69/36**
[58] **Field of Search**.....273/186, 183, 191, 273/192, 187

[56] **References Cited**

UNITED STATES PATENTS

1,854,392	4/1932	Bambrick	273/191 A X
2,807,472	9/1957	Hatfield	273/191 A
2,813,721	11/1957	Zega	273/191 A
2,868,543	1/1959	Zega	273/191 A

Primary Examiner—George J. Marlo
Attorney—Thomas L. Tully et al.

[57] **ABSTRACT**

A mechanical instruction apparatus for guiding a golf club during a practice swing. The apparatus has a minimum amount of supporting structure for a pair of closely-spaced, curved rails adapted to loosely receive and guide the lower shaft portion of a golf club and for a guide rail adapted to guide the club on the follow-through, and an improved carriage for supporting the upper portions of the rails and adjusting the height and angle of said rails to accommodate students of different height. The upper sections of the rails are adapted to be shifted automatically during the practice swing to a new position out of the path of the follow-through of the practice swing, thus enabling the completion of a proper swing, and a flexible bumper is provided to engage and limit shifting movement of the upper sections.

9 Claims, 6 Drawing Figures

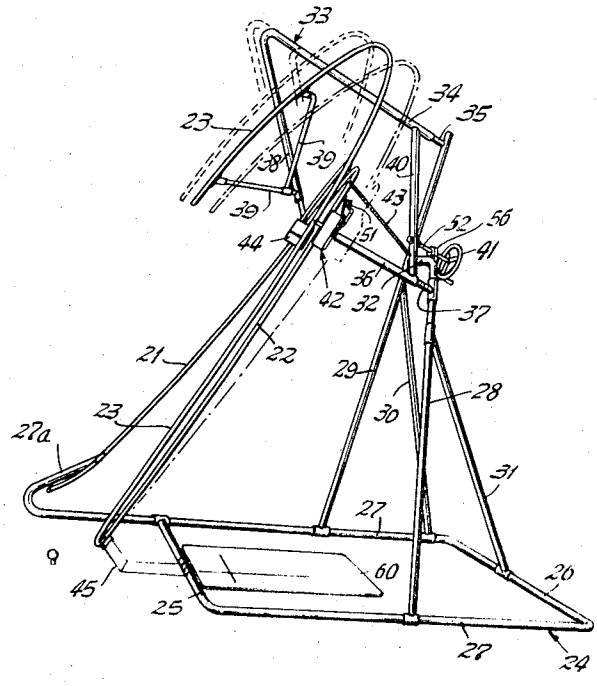


Fig. 1

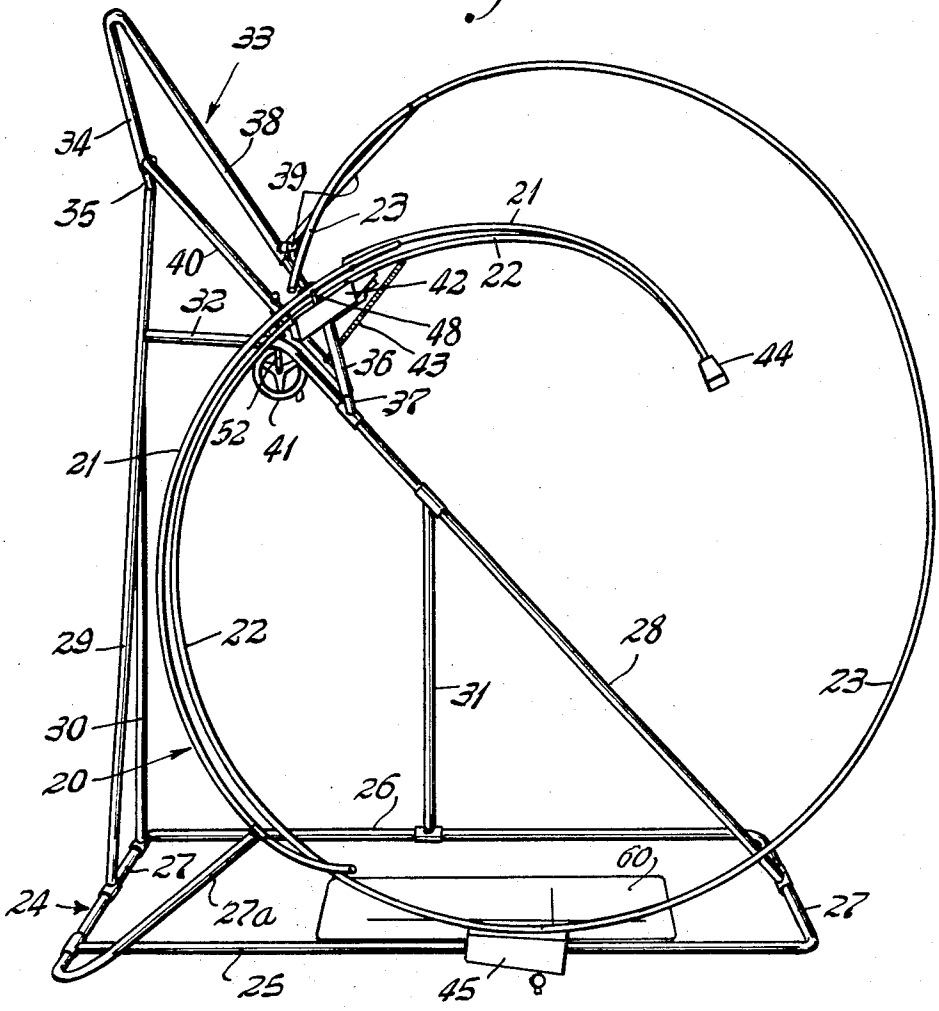

33
34
38
39
35
23
21
40
42
22
32
48
36
43
44
37
52
41
21
29
22
28
23
31
30
20
26
27
60
24
27a
27
25
45

Fig. 5

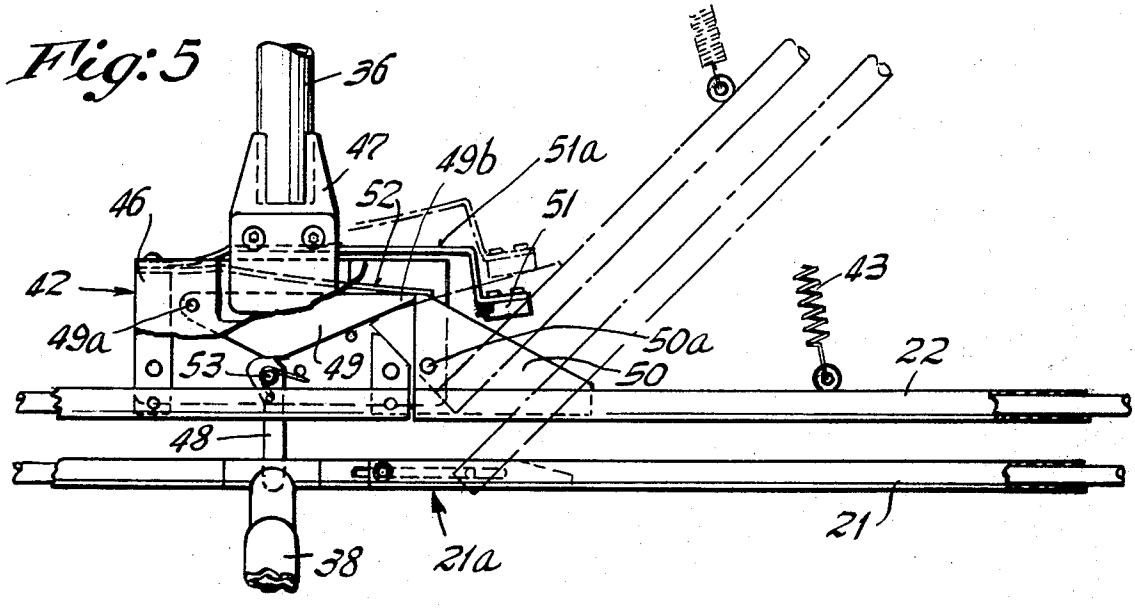

36
47
49b
51a
46
52
51
42
43
49a
53
49
50a
50
22
48
21
38
21a

Fig. 2

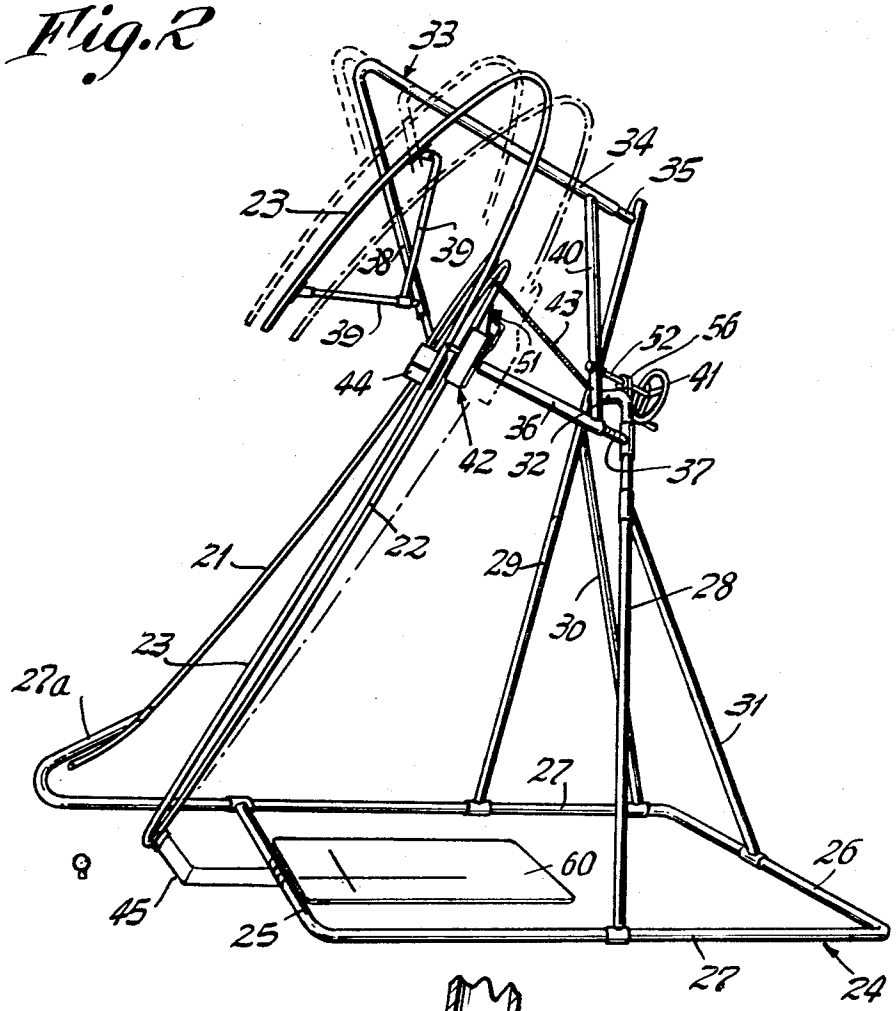

33
34
35
23
38
39
40
43
39
52
56
44
51
41
36
42
32
37
21
22
29
28
30
23
27a
31
27
60
26
45
25
27
24

Fig. 4

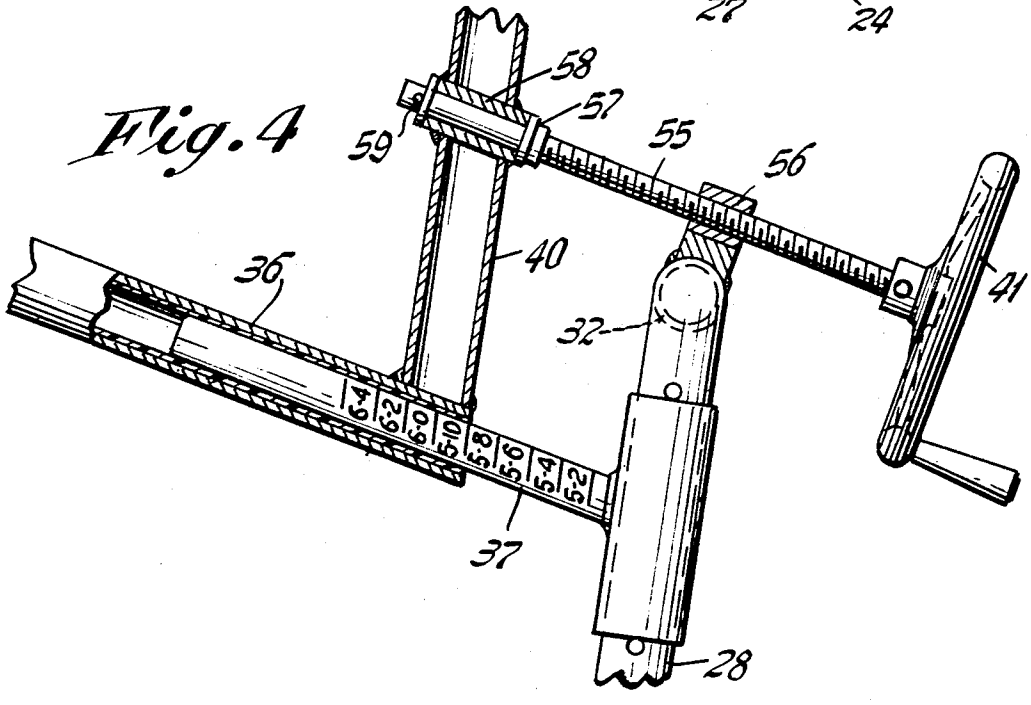

58
57
59
55
56
40
36
41
32
37
28

Fig. 3

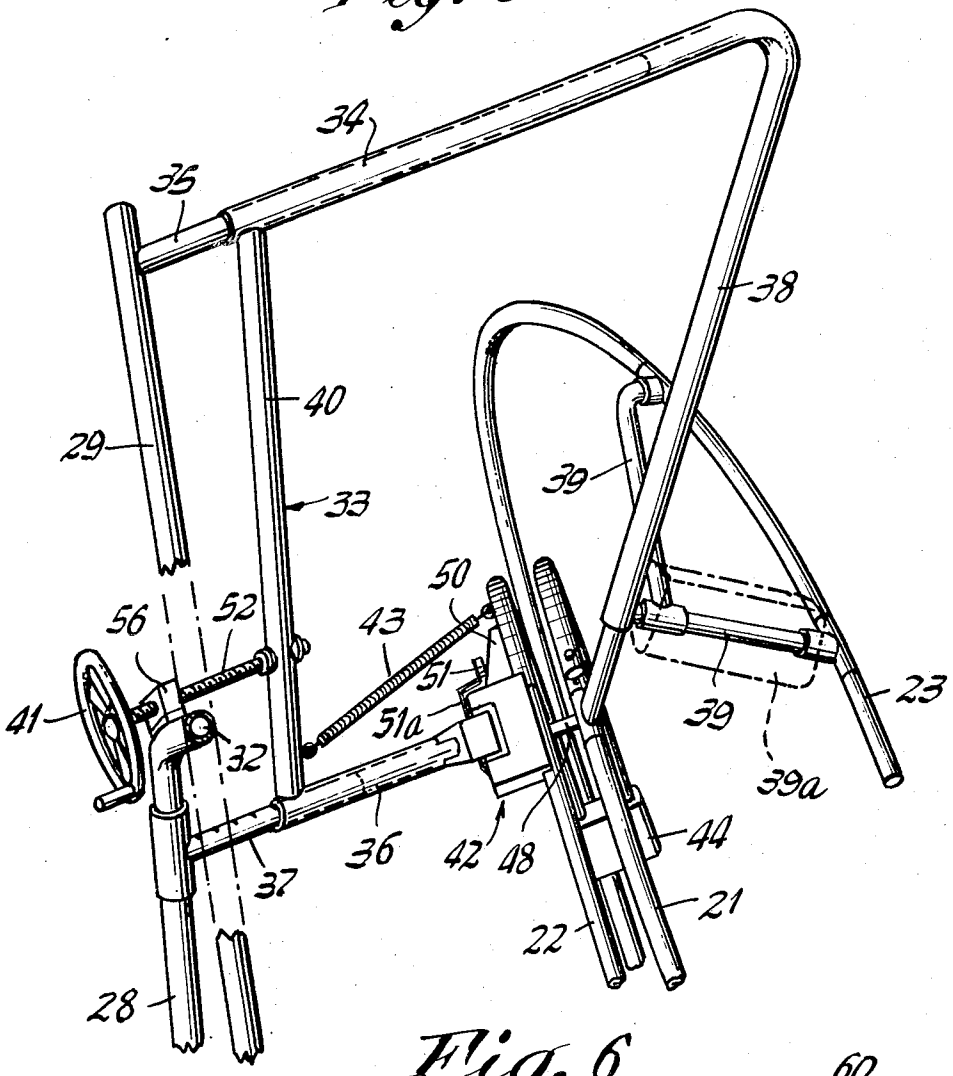
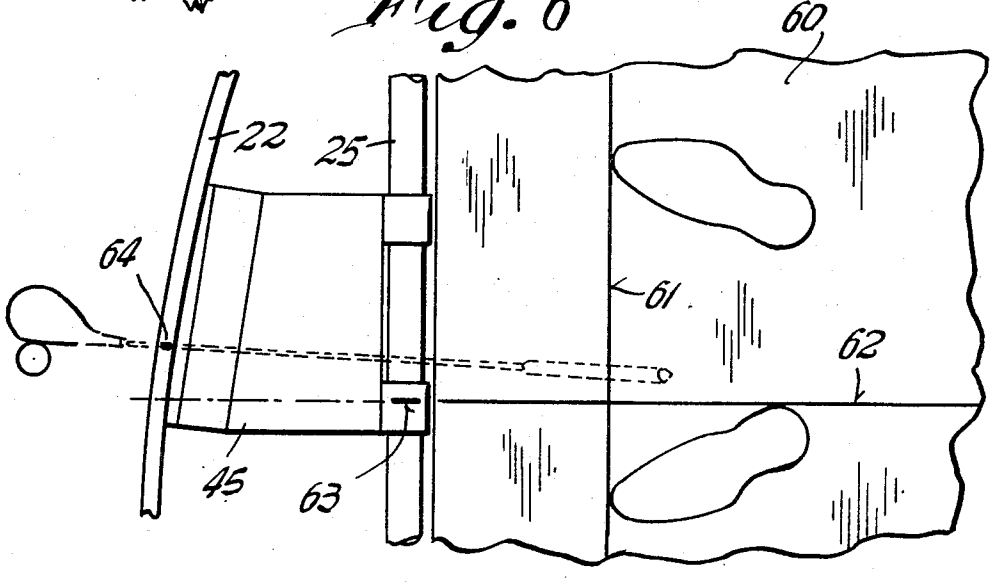

34
35
38
40
29
33
39
50
56
52
43
51
41
51a
32
23
39
39a
36
42
48
44
37
21
22
28

Fig. 6


60
22
25
64
61
62
45
63

GOLF SWING PRACTICE DEVICE

The apparatus of the present invention is an improvement over the related device of my earlier U.S. Pat. No. 2,813,721.

While the device of my aforementioned patent has enjoyed commercial success and has been found to be an important aid to golf students in improving their golf swing, I have found that it does have certain disadvantages which detract from its efficiency. The patented device has a substantial amount of structure which supports the guide rail within the view of the student and this is often found to be a distraction with respect to the concentration required on the part of the student and furthermore increases the possibility of the student hitting the structure with his club during an incorrect swing, with resultant damage to both club and device.

The patented device also is rather cumbersome to adjust for students of different heights in that the guide rail is supported by two different stanchions which must be adjusted individually and by three different struts which also require individual adjustment.

Finally, the patented device is provided with latch and hinge means and a spring for shifting the upper rail sections out of the path of the backswing and with a pad on the supporting structure to absorb the impact of the shifted rail sections. Since the rail sections travel some distance before impact with the pad, the impact is rather severe and distracting and can result in premature wear-out of the upper rail sections and/or the pad.

It is the principal object of the present invention to provide an improved mechanical instruction apparatus for guiding a golf club during a practice swing, which apparatus has a minimum amount of supporting structure, particularly within the view of the student as he uses the apparatus.

It is another object of this invention to provide an improved mechanical instruction apparatus which has a single means for adjusting the apparatus whereby the apparatus can be adjusted quickly and accurately by means requiring no mechanical skill.

It is still another object of the invention to provide an improved mechanical instruction apparatus having an improved means for shifting the upper rail sections in such a way that impact, wear and distraction are minimized.

These and other objects and advantages of the present invention will be apparent to those skilled in the art in view of the present disclosure, including the drawings in which:

FIG. 1 is a front elevational view of the improved mechanical instruction apparatus of the present invention,

FIG. 2 is a side elevational view of the apparatus of FIG. 1,

FIG. 3 is a perspective view of the adjustment means, upper rail carriage, latch means and upper rail section of the present apparatus,

FIG. 4 is a fragmentary cross-section illustrating the adjustment means for moving the upper rail carriage relative to the front stanchion of the present apparatus,

FIG. 5 is a plan view of the hinge and latch means for the swingable portions of the upper guide rails of the present apparatus, and

FIG. 6 is a plan view of the position stand and associated portions of the base and lower rail and its support.

The improved mechanical golf swing apparatus of the present invention, as shown in FIGS. 1 and 2, comprises a club-guiding means 20 which is similar in appearance to the corresponding means of my U.S. Pat. No. 2,813,721, said means being in the form of curved rails extending at an angle to the vertical and along a predetermined curvilinear path which defines substantially a closed loop and conforms to a prescribed golf club swing. However the club-guiding means of the present invention has a substantially improved suspension system and adjustment means.

A first portion of the guide means 20 comprises spaced upper and lower rails 21 and 22 respectively, and the remainder of the guide means comprises but a single curved guide rail 23 attached to and constituting a continuation of the lower guide rail 22 of the pair. A club-guiding means which is so constituted functions very effectively in properly guiding the golf club during the practice swing. During the initial portion of the swing, including the backswing, the pair of rails 21, 22 confines the golf club fairly closely, and prevents the club from departing appreciably from the correct path. As the golf club reaches the lower portion of its arc, approximately half-way through the forward swing, the second or upper rail 21 is discontinued and only the lower rail 22 and a single rail 23 constituting a continuation of the rail 22 is utilized, to guide the club. During the latter portion of the swing of the golf club, there is a tendency on the part of the person swinging the club to direct the latter backward rather than forward. Therefore the club will generally be maintained in contact with the single rail 23, without the aid of any additional guide means whatsoever.

The upper portion of the single rail 23 which guides the club during the latter part of the swing is made substantially higher than the upper portions of the pair of guide rails 21 and 22, and therefore during the backswing, prior to initiation of the forward stroke of the club, the single rail 23 will not interfere with the club because of the shortened radius as effected by the stance of the person using the club, the grip and positions of the arms, etc. However, on the follow-through of the swing, the arc of movement of the club has a larger radius, due to the stance, position of the hands and arms, etc., and accordingly the club will be guided along the single rail 23 even though it is higher than the rails 21 and 22, and will not shift off of the single rail or normally become disengaged therefrom.

Referring to FIG. 2, I dispose the pair of rails 21 and 22 in a curved path determined to be correct for the proper initial swing of the golf club. From this Figure it will be seen that the single guide rail 23 follows in general the path initially established by the pair of rails 21, 22 except at the top of the swing. At this point the single guide rail 23 crosses over the upper portions of the pair of rails 21 and 22 from the rear toward the front at an acute angle, and thereafter extends downward and is spaced appreciably forward of the said pair of rails. This, I have determined, is considered the most desirable path for the club to follow for a natural, accurately-controlled driving swing including the proper shoulder turn at the completion of the swing.

The guide means 20 is carried on a support comprising a base 24 having front and rear members 25 and 26 and side members 27. The base supports upwardly-ex-

tending stanchions 28 and 29, stanchion 28 being secured to one side member 27 of the base 24 and stanchion 29 being secured to the other side member 27, both secured slightly closer to the rear member 26 than to the front member 25. A short angle brace bar 31 is also provided between the stanchion 28 and the rear member 26 while stanchion 29 is braced by angle brace bar 30 provided between stanchion 29 and side member 27. The stanchions 28 and 29 are connected together adjacent their upper portions by adjustment support bar 32.

As shown in FIGS. 1 and 2, the upper portions of the pair of guide rails 21 and 22 are supported by an upper rail carriage 33 which is illustrated in greater detail in FIG. 3 of the drawings. Referring to FIG. 3, rear stanchion 29 is connected to male support member 35 which is in sliding engagement within sleeve member 34 of the rail carriage while front stanchion 28 is connected to male support member 37 which is in sliding engagement within sleeve member 36 of the rail carriage. Sleeve member 34 is extended and bent to form rail support member 38 having attached thereto rail support bars 39 which are both connected to guide rail 23. If desired, a bumper 39a may be secured to bar 39, as shown by broken lines, in order to protect the golf club during an improper followthrough. Rail support member 38 is also connected to upper rail 21, as illustrated.

An adjustment support bar 40 connects sleeve members 34 and 36 which are in cooperative telescoping association with support members 35 and 37 attached to the stanchions 29 and 28, respectively. The adjustment support member 32, which is a continuation of stanchion 28, has attached thereto fixed threaded mount 56 and adjustable threaded drive member 55, one end of which is rotatably connected to adjustment support bar 40 of the carriage by means of a sprocket 58, thrust washers 57 and pin 59, as more clearly illustrated in FIG. 4. Rotation of wheel 41, connected to threaded drive member 55, causes the entire upper rail carriage to move a predetermined distance towards or away from stanchion bars 28 and 29, thereby lowering or raising the height of the rail sections 21, 22 and 23 and automatically changing the angles thereof to accommodate students of different heights. This change in position is illustrated by the broken lines in FIG. 2, while FIG. 4 illustrates a graduated scale which is provided on male support member 37 whereby the proper adjustment position of the carriage relative to the stanchions is indicated in terms of the height of the student using the device. In FIG. 4 the carriage is illustrated in the proper position for a student having a height of 5 feet 9 inches and the position can be varied to accommodate students of greater or less height by rotating wheel 41 to slide the carriage 33 away from or towards fixed mount 56 to the position on the graduated scale corresponding to the height of the student.

As discussed supra, the rail section 21 is supported by rail support member 38 and the rail section 23 is supported by rail support bars 39 attached to rail support member 38. The other rail section 22 is also supported on the carriage 33 by means of the latch housing 42 which is connected to sleeve member 36 by means of housing bracket 47. Thus adjustment of the position of the upper rail carriage automatically and simultaneously changes the height and angle of the three rail sections, as illustrated by FIG. 2. The only points of attachment of the rail sections to the present device, other than to the upper rail carriage, are the attachment of the lower extremity of upper rail 21 to side extension bar 27*a* and the attachment of lower rail 22 and its continuation, guide rail 23 to lower rail support 45, as shown in FIGS. 1 and 2.

Referring to FIGS. 1 to 3 and 5, the upper terminal portions of the rails 21 and 22 are hingedly connected to the remainders of the rails and are caused to automatically swing to an angularly and rearwardly-extended position in order that the golf club during the follow-through portion of the swing will have proper clearance. To accomplish this, hinge and latch means is provided, secured to the lower rail 22, as shown in detail in FIG. 5, said means including a novel shock absorbing bumper means in order to reduce impact, wear and distraction during the shifting of the upper rail section. The hinge and latch means comprises a latch housing 42 having upper and lower plates 46 securely fastened to opposite sides of the rail 22. A hinge member 50 is carried by a pivot pin 50*a* between the plates 46, the member 50 being roughly of triangular shape and carrying the uppermost portion of the rail 22, said portion being severed from the remainder or lower portion of rail 22. The upper terminal or end portion of the rail 22 is attached to a U-shaped connector bumper 44, said bumper also having attached to it the upper terminal or end portion of the rail 21. Adjacent the severance in the rail 22, the rail 21 is provided with a pin-and-slot connection 21*a*, such connection enabling the uppermost portions of the rails 21 and 22 to swing backward about the pivot pin 50*a*, as shown by the broken outlines in FIG. 5.

Normally the rail sections are maintained in alignment, as indicated by the full line showing of FIG. 5, by a pivoted latch arm 49 mounted between the plates 46 carried on a pivot 49*a* secured to said plates. The latch arm 49 has an extremity 49*b* engageable with the uppermost projection of the hinge member 50, and the latch arm 49 is normally urged to and held in the locking position shown by a lever spring 52. Automatic actuation of the latch arm 49 is effected by a trigger 48 carried by a pivot 53 secured to one plate 46, said trigger having a finger portion engageable with a laterally-projecting portion of the latch arm 49. The trigger 48 is normally held in a non-releasing position as shown in FIG. 5 by a wire coil spring 43, and may be swung counterclockwise from the locking position, as illustrated by the golf club as it is brought back to initiate the forward swing. As the golf club is again brought forward, it will strike the trigger 48 and swing it clockwise, thereby tripping the latch arm 49 and enabling the uppermost portions of the rails 21 and 22 to swing counterclockwise as indicated. Such movement of the rails is effected by an extension coil spring 43, FIGS. 1 to 3, secured to the rails and to the adjustment support bar 40 of the framework.

The improved device of the present invention provides a yieldable rail bumper 51 which is attached to the latch housing by means of a shock spring 51*a* and which is closely spaced from the shiftable rail section. The bumper is formed of rubber or other cushioning material and functions to contact the leading edge of

hinge member **50** during the shifting of the uppermost portions of the rails **21** and **22** caused by the golf swing, as illustrated by FIG. **5**. As shown by broken lines in FIG. **5**, the shock spring **51***a* flexes to a stress position when the upper rail sections are released and urged out of position by means of the lever spring **43**, thereby cushioning the stoppage of movement of the upper rail sections in a manner which minimizes the amount of noise and the wear-and-tear on the hinge mechanism and upper rail sections. This represents an important improvement over prior known devices in which the upper rail sections, when released, were caused to swing a greater distance and were stopped by means of a fixed cushion attached to the frame with resultant distracting noise and high impact stress on the hinge mechanism and upper rail sections.

After the uppermost sections of the rails **21** and **22** have been shifted backward, they may be restored to their normal positions aligned with the remainder of the rails, by hand, the restoring movement again permitting the latch arm **49** to lock the parts in their operative positions.

In addition to the simplified single adjustment means which permits the student to adjust the present practice device to the correct height and angle for his or her size, the present device also provides means whereby the student is permitted to take up the proper foot and club position without any external guidance. As illustrated by FIG. **6**, the present device is provided with a position stand **60** which is associated with the front member **25** of the base and which is provided with a toe line **61** and heel line **62** which is in alignment with a base line **63** on the front member **25**. Also a rail line **64** is present on rail **22** adjacent the rail support **45** at a distance of about 1½ inches from an imaginary extension of the heel line, as illustrated in broken lines. If desired, feet position outlines may be present on the position stand, as shown. To take up a proper approach position, the student merely has to position one foot on each side of the heel line, the left heel touching the heel line, as shown, and position his toes along the toe line. The handle of the club is held to the right of the heel line while the shaft of the club, adjacent the head, is positioned over the rail line **64** at the position of impact with the golf ball, placing the club at a slight angle, as illustrated in FIG. **6**. As is evident, in the absence of the position stand aligned with the base and rail, the student requires professional guidance in order to properly position himself to use the present practice device in the proper manner.

It should be pointed out that plastic coatings preferably are provided on a number of elements of the present apparatus for a number of reasons including reduction of friction, wear and noise. Waxy-feeling plastics such as polytetrafluoroethylene (Teflon), polyethylene and polypropylene are preferred materials. The plastic coating is preferably provided in the form of a preformed tube which is slipped over the inner, outer and guide rails and then heat-shrunk thereon to provide a friction-reducing coating which reduces the amount of noise and wear caused by the movement of the club shaft over the rails. Likewise the carriage support members **35** and **37** are provided with similar heat-shrunk plastic tube coverings to reduce the friction between these members and cooperative sleeve members **34** and **36**, whereby adjustment of the carriage is facilitated. Also the trigger of the latch mechanism is preferably coated with a similar plastic in order to reduce the noise and wear caused when the trigger is struck by the shaft of the club.

As can be readily appreciated from the foregoing description, the novel improved device of the present invention has a simplified structure which substantially reduces the amount of distracting supporting structure,particularly within the view of the user. Aside from being distracting, an excess of supporting structure also increases the possibility that the student will strike the structure with his club during an improper golf swing, with resultant damage to the club and device. The present device, while a great improvement, is not foolproof and therefore a wrap-around cushion pad **39***a* is preferably mounted on rail support bar **39**, as shown by broken lines in FIG. **3**, as protection against the possibility of the user making an improper shoulder turn at the completion of the swing and bringing the club back up inside guide rail **23** and striking the pad **39***a* from the rear, and as protection against the possibility of the user failing to keep the arms fully extended during the follow-through and causing the club to come off the guide rail prematurely and below the uppermost loop of the guide rail, striking the pad **39***a* from the front. Similarly the connector rail bumper **44** is preferably a cushioned bumper to protect the user's hands and club in the event that an improper backswing is made whereby the club is not swung back high enough to release the latch mechanism.

Variations and modifications may be made within the scope of the claims and portions of the improvements may be used without others.

I claim:

1. A mechanical instruction aid for guiding a golf club during a practice swing, comprising a support, a pair of closely-spaced, inner and outer curved rails, a lower portion of each of which is attached to said support, said rails extending alongside each other and arranged to loosely receive between them the lower shank portion of the golf club, said rails extending along only a predetermined curvilinear path adapted to form the backswing portion of a prescribed golf-club swing; a single curved guide rail secured to an end of said inner rail and constituting a continuation of said rail, said single guide rail extending along a predetermined curvilinear path adapted to form the remainder of said prescribed golf-club swing; hinge and latch means connecting the juxtaposed upper end portions of said pair of rails to the remainders thereof to enable said end portions to be swung out of said curvilinear path and thereby provide clearance for the golf club on the follow-through of the latter; and unitary carriage means supporting said hinge and latch means, the upper portions of said inner and outer curved rails and the upper portion of said guide rail and being adjustably attached to said support whereby adjustment of the position of said unitary carriage means relative to said support simultaneously changes the height of said rails and the angle of said curvilinear path in order to accommodate users of different height.

2. A mechanical instruction aid according to claim **1** in which said support and said unitary carriage means are each provided with a multiplicity of spaced at-

tachment means which cooperate with one another in supporting the carriage in a number of adjusted positions.

3. A mechanical instruction aid according to claim 2 in which an adjustment means is provided between said support and said carriage, intermediate said spaced attachment means, for changing the position of said carriage relative to said support.

4. A mechanical instruction aid according to claim 2 in which at least one pair of said cooperating attachment means is provided with indicia defining a series of positions of the carriage relative to the support.

5. A mechanical instruction aid according to claim 1 in which the said guide rail is attached to the support adjacent the point at which the golf club will strike the golf ball during a practice swing, and said support and said guide rail are provided with relative indicia, the indicia on the support enabling the user to assume a proper foot position and the indicia on the guide rail enabling the user to assume a proper club position during the use of the device.

6. A mechanical instruction aid according to claim 5 in which a position stand is associated with the indicia on the support and is provided with further indicia to enable the user to position his feet at the proper distance and angle relative to the indicia on the guide rail.

7. A mechanical instruction aid for guiding a golf club during a practice swing, comprising a pair of closely-spaced, curved rails extending alongside each other and arranged to loosely receive between them the lower shank portion of the golf club, said rails extending along only a predetermined curvilinear path adapted to form the backswing portion of a prescribed golf-club swing; a single, curved guide rail secured to an end of one of said pair of rails and constituting a continuation of said one rail, said single guide rail extending along a predetermined curvilinear path adapted to form the remainder of said prescribed golf-club swing, the upper end portions of said pair of rails and single rail being attached to a unitary adjustable carriage, the said path of said rails being generally in the shape of a closed loop; hinge means connecting the juxtaposed upper end portions of said pair of rails which define the beginning of the swing to the remaining portions of the rails to enable said end portions to be swung out of said curvilinear path and thereby provide clearance for the golf club on the follow-through of the latter; latch means releasably holding said hinged upper end portions in said curvilinear path; spring-charged means for swinging said end portions out of said path about said hinged connection; flexible bumper means yieldably-attached to said hinge means and closely-spaced from said end portions of said pair of rails in order to contact said end portions during their swing out of the curvilinear path and yieldably restrain said end portions to a stop position; and means engaged by the golf club when leaving said end portions, rendering inoperative said latch means whereby the end portions are automatically swung clear of the club and into contact with the bumper means on the follow-through of the club.

8. A mechanical instruction aid according to claim 7 in which said flexible bumper means comprises a cushioning material mounted on a lever spring attached to a stationary portion of said hinge means, said cushioning material being positioned to contact a movable portion of said hinge means attached to said end portions of said pair of rails during their swing out of the curvilinear path.

9. A mechanical instruction aid according to claim 7 in which the said upper end portions of said pair of rails are connected and are provided with a protective cushion at the point of connection.

* * * * *