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3,339,926

GOLFER'S ARM BEND RESTRAINING DEVICE

Filed April 28, 1965

2 Sheets-Sheet 1

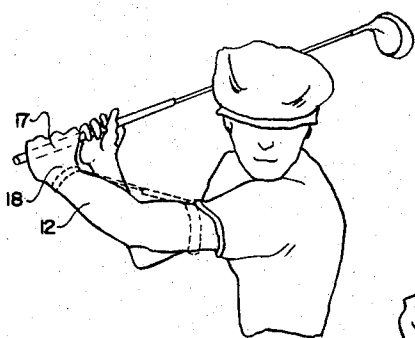


FIG. 1

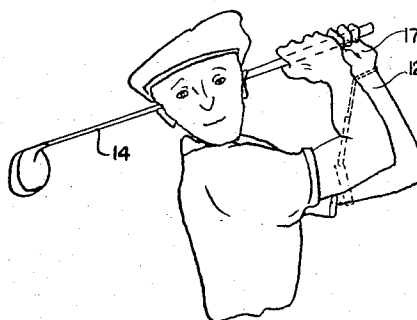


FIG. 3

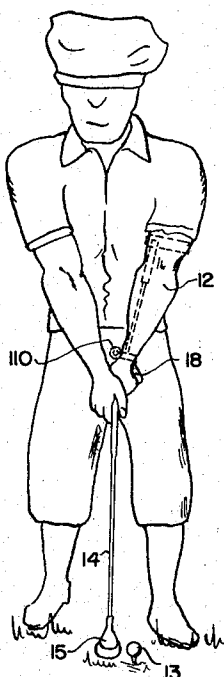


FIG. 2

FIG. 5

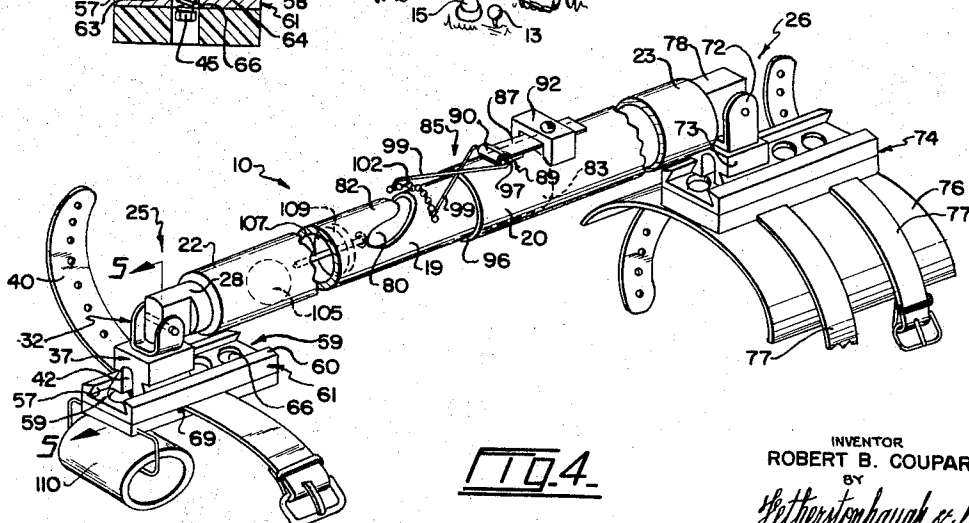
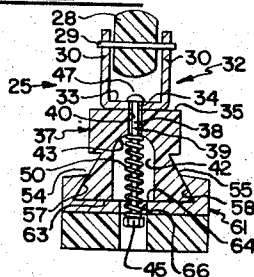


FIG. 4

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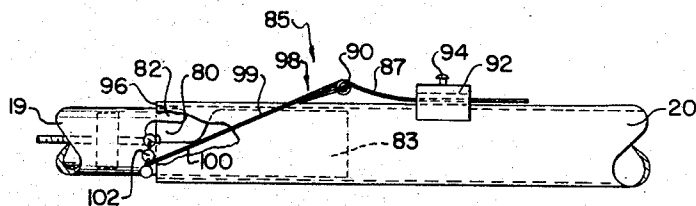


Fig. 6.

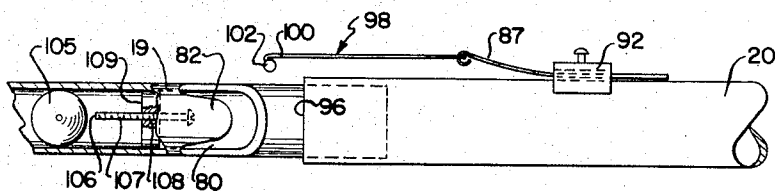


Fig. 7.

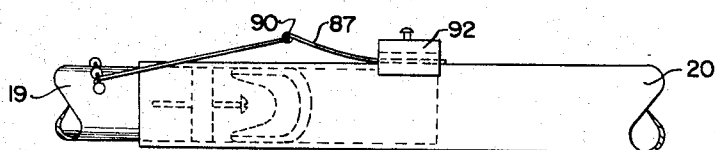


Fig. 8.

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GOLFER'S ARM BEND RESTRAINING DEVICE

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7 Claims. (Cl. 273-183)

This invention relates to swing correcting devices for golfers.

The development of a proper swing in golfing has resulted in the design of many attachments to be applied to the golfer's arm and which are primarily for the purpose of maintaining his leading arm in a relatively straightened condition during the movement of the club through and to the top of the back-swing. It is common amongst golfers, especially with beginners, to bend the arm at the top of the back-swing so as to relieve the strain upon the shoulder and back muscles. In order to prevent this bending, the swing devices hereinbefore mentioned have usually employed a stiffening brace which may be connected to the arm to extend across the inside of the elbow and which therefore always maintains the arm in a relatively straight, stiff condition. Although these devices have resulted in a properly stiffened arm respecting the back-swing portion of the entire golf swing, they also maintain the arm in a stiffened condition throughout the entire follow-through portion of the golf swing. It is important, in perfecting a proper golf swing, to complete the entire swing in a manner in which the body is left in a perfectly balanced condition after the club is brought to rest, following the hitting of the ball. In order to do this, there must be freedom of the leading arm to bend and thereby allow the club to swing to a position across the back of the golfer, a position which should be reached upon the completion of the swing. Where the leading arm is not permitted to bend upon completion of the swing, the golfer must consciously bring his club to a stop after hitting the ball to prevent undue strain on his leading arm imparted thereon by the swinging club at the end of the follow-through stroke. It has been found that a conscious effort on the part of a golfer to retard his swing after striking a ball, materially affects his ability to concentrate on the initial portion of his swing as he must always have in mind the need for retarding a swing after striking a ball, or finding himself thrown off balance as he attempts to bend his arm at the termination of the follow-through portion of the swing.

The present invention provides an apparatus to maintain the leading arm in a stiffened condition during the back-swing portion of the golf swing yet, which by utilizing the relative changing position of the wrist to the upper arm occasioned by the pronation of the hand as the arm moves into the follow-through portion of the golf swing, automatically operates to permit the elbow to be bent, thereby permitting the golfer to finish his stroke in the desired relaxed manner.

The present invention also provides a means by way of an audible signal after the club is brought to the top of the back-swing whereby he may momentarily hesitate for a predetermined period of time before swinging his club downwardly to strike the ball. This momentary hesitation is important in developing a controlled swing so that the golfer may concentrate on proper co-ordination of all his movements before swinging his club to strike the ball.

The present invention also provides a means whereby the golfer is directed to maintain a firm grip upon the club at the top of the back-swing. The loosening of the grip, especially that of the left hand, is a common fault of neophytes and leads to loss of club control.

The present invention comprises a brace formed of a

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pair of elongated telescopically-arranged members, means to fasten each end of the brace at the wrist and biceps so that it extends around the inside of the elbow, said members being telescopically positionable between extended and retracted positions upon movement of the arm between straightened and bent positions and being relatively rotatable to permit pronation of the hand, mutually engageable locking means on each member located so as to be operatively effective for locking the members in a predetermined position of extension operating upon their change in relative position from a fully extended position, effected by the tendency of the arm to bend during the back-swing from a fully straightened position, to thereby prevent bending of the arm and to be operatively ineffective upon said members' change in relative position effected by the pronation of the hand in the follow-through portion of the swing, to thereby permit the member to move to a retracted position and thereby permit the arm to bend freely.

In the description and claims following, the terminology used to describe the various portions of a golf swing shall be those commonly used by proficient and learned golfers and, in describing the purpose and use of the apparatus constructed in accordance with this invention, reference shall be made to its application as applied to the left arm of a right-handed golfer, it being understood that when used by a left-handed golfer, reference hereinafter to the left arm of a right-handed golfer shall be deemed to apply to the right arm of a left-handed golfer.

In the drawings which illustrate the invention,

FIGURE 1 is a graphic illustration of a golfer, showing the swing correcting device in dotted lines and the club correctly positioned at the top of the back-swing,

FIGURE 2 is a view similar to FIGURE 1, showing the position of a golfer's arm, the position of the correcting device in dotted lines and the club while addressing a golf ball,

FIGURE 3 is a view similar to FIGURES 1 and 2, showing the correct position of the golfer, the swing correcting device in dotted lines and the club at the termination of the follow-through part swing,

FIGURE 4 is an isometric view of the device constructed in accordance with this invention,

FIGURE 5 is a sectional view of the device of FIGURE 4 taken along line 5-5 thereof,

FIGURE 6 is a side elevation of a portion of the telescopically-arranged members, illustrating the latter in their locked position,

FIGURE 7 is a view similar to FIGURE 6 showing said members in an unlocked extended position, one of the members being rotated relative to the other at the position as shown in FIGURE 6, and

FIGURE 8 is a view similar to FIGURES 6 and 7, showing the members in their retracted position.

In describing the construction and application of the golf swing correcting device herein accorded the numeral 10, reference will be made to the position assumed by various of its movable parts as the left arm 12 of the golfer is moved throughout the entire golf swing.

FIGURE 2 illustrates the golfer at the moment of address to a golf ball 13. In this position, the golfer extends the club 14 so that the head 15 thereof lies just behind the ball 13. In this position, the arm 12 is fully extended as straight as possible and inclined outwardly at an angle to the body. The back of the left hand and, consequently, the inside of the wrist is in somewhat of a vertical plane. The left arm 12 is then swung to the right, being maintained in a stiffened position so as to swing the club up into what is commonly termed the back-swing. As the left arm is being swung back to reach a point at which it can

no longer be swung away from the ball, the left wrist is allowed to bend slightly or cock so that the club 14 assumes a somewhat horizontal position behind the golfer's head. It is usually found that beginners at the game of golf find it impossible to maintain the left arm in a straightened condition and, at the same time, cock the wrists. Consequently, it is advisable that the left arm should bend or flex slightly in order to relieve the strain on the muscles thereof. However, golfing neophytes, in order to relieve the strain, usually overbend the arm to such an extent that absolute control of the club during its swing is lost. In swinging the club 14 from the top of the back-swing, as shown in FIGURE 1, to meet the ball, the centrifugal force of the club and the lower part of the arm normally results in the arm returning to its fully straightened condition, as shown in FIGURE 2. After the ball is struck, the arm is permitted to swing forwardly and upwardly, this latter movement being termed the "follow-through," during which movement the left hand 17, while the arm 12 is in its straightened condition is "pronated," that is, rotated around the elbow and wrist from a position in which the back of the left wrist is moved from its substantially vertical position to a horizontal position. At the same time, the left arm is relaxed, allowing it to bend and to carry the club behind the golfer's head.

The full swing, that is, the swing commencing with the club addressing the ball to the termination of the follow-through portion of the swing, must be conducted smoothly so that the body will always remain in balance. Furthermore, although the left arm must be maintained in a relatively straightened condition at the top of the back-swing, yet it must be allowed freedom of movement at the termination of the follow-through part of the stroke in order to allow it to bend, thereby maintaining this balance. It is to the attaining of the stroke, as described hereinbefore, by maintaining the arm in a straightened condition at the top of the back-swing and, to the free bending of the latter at the termination of the follow-through, that the device 10 is mainly directed.

Referring now to FIGURE 4, the device comprises a pair of elongated hollow cylindrical shafts 19 and 20. Shaft 19 having a slight smaller outside diameter than the inside diameter of shaft 20 so that both shafts may be telescopically mated and are slidable and relatively rotatable to each other. The opposed ends 22 and 23 of shafts 19 and 20 respectively, are each provided with fastening apparatus 25 and 26 respectively, whereby said opposed end 22 of shaft 19 may be secured at the wrist 18 and the opposed end 23 of shaft 20 secured at the biceps of the arm.

Referring only to fastening apparatus 25, as fastening apparatus 26 is formed in exactly the same manner, it will be seen that the opposed end 22 of shaft 19 is closed by a cylindrically shaped plug 28 which extends from said end, and is hingedly mounted on a shaft 29 which extends between the arms 30 of a yoke-like bracket 32, the latter having a base 33 normal to said arms and provided with a central circular aperture 34. The bracket 32 is mounted on an upper surface 35 of a short yet thick slide block 37 on the shaft 38 of a pin 39 which passes vertically through the aperture 34 and downwardly through a passage 40 formed in the sliding block 37. The passage 40, which slidably embraces the shaft 38 of the pin, has an enlarged portion 42 at its lower end to form a shoulder 43, and the pin 39 has a nut 45 threaded at its lower end 46, the upper end 47 thereof being riveted. A coil spring 50 is maintained captive under compression between the nut 45 and the shoulder 43 so that the bracket 32 is normally urged against the upper surface 35 of said slide block. The slide block 37 is formed having an opposed pair of outwardly sloping side surfaces 54 and 55 which are arranged to slidably mate with similar sloped side surfaces 57 and 58 respectively, of an elongated groove 59 formed in the upper surface 60 of an elongated and rectangularly shaped slide block retaining mem-

ber 61. The groove 59 has a planar base 63 upon which the bottom surface 64 of the slide block 32 slidably bears, the slide block 37 and retaining member 61, by reason of the mating surfaces 54, 55, 57 and 58 respectively, being slidable relative to each other longitudinally of the groove 59 only.

The base 63 of groove 59 is provided with a longitudinal series of enlarged apertures 66 adapted to freely receive the nut 45 at the lower end of the shaft 38, the pin being long enough so that when the bracket 32 is urged downwardly against the upper surface 35 of the slide block by the spring 50, the nut will extend into said apertures 66, engaging the one selected and thereby preventing relative slidable movement of the slide block 37 with the retaining member 61. The enlarged portion 42 of the lower end of the passage 40 is sufficiently long enough so as to permit the nut to be fully withdrawn from any one of the apertures 66 selected and into said enlarged portion 42 when the bracket 32 is lifted, against the action of the spring, upwardly from the upper surface 35 of the slide block 37, thereby permitting selective slidable positioning of the slide block relative said retaining member 61. The retaining member 61 is provided with a transversely extending slot 69 through which a suitable strap 70 is threaded, the said strap being sufficiently long that it may extend around the wrist of the arm.

Fastening apparatus 26 is of similar construction to fastening apparatus 25 having a yoke-like bracket 72 secured on a slide block 73, the latter being arranged in the same manner as is found in fastening apparatus 25 for selective longitudinal positioning on a slide block retaining member 74. Fastening apparatus 26 is different from fastening apparatus 25 in that the retaining member 74 is provided with a stiff curvate half sleeve 76, fastened thereto by rivets or the like, and which may be secured to the arm at the biceps thereof by means of straps 77. Fastening apparatus 26 is secured in the same manner to a plug 78, similar to plug 28, and fitting and closing the opposed end 23 of said shaft 20.

Shaft 19, at or near its middle length, is partially cut away as by an arcuately shaped slot 80 to provide a longitudinally extending tongue 82 extending towards the free end 83 of said shaft, and shaft 20 is provided with a latch mechanism, accorded for identification the numeral 85, and which is adapted to engage the slot 80 in a manner hereinafter to be described.

The latch mechanism 85 comprises an elongated flat strip of stiffly flexible material 87 which may be formed of spring steel or a material, such as a stiff thermoplastic, the strip being rolled at one end 89 to form a transversely extending sleeve 90 and extends beneath a U-shaped clamp 92, the latter being secured as by welding to the shaft 20, the strip being firmly secured longitudinally of the shaft and being longitudinally adjustable thereto by means of a set screw 94 extending through the clamp 82. The sleeve 90 of the strip 87 extends towards the free end 96 of the shaft 20 and rotatably receives a straight middle portion 97 of a length of spring steel wire 98, the latter having elongated end sections 99 extending from the ends of said middle portion 97 and being bent so that they cross each other in the form of an X, the free ends 100 of said end portions being spaced apart and engaged with a length of transversely extending flexible chain 102. The latch mechanism 85 is so arranged by the set screw 94 that the flexible chain 102 extends outwardly beyond the free end 96 of the shaft 20 a distance of approximately one-half an inch.

The device 10 is strapped to the left arm, the fastening apparatus 25 being secured to the wrist, and fastening apparatus 26 being secured at the biceps so that the shafts 19 and 20 extend across the inside of the elbow. The shafts 19 and 20 must be positioned so that the tongue 82 is aligned with and is on the same side as the latch mechanism when the arm is positioned so that the club 14 addresses the ball, said shafts 19 and 20 must also be posi-

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tioned longitudinally of each other so that when the arm is in its fully straightened position, such as is taken when addressing the ball, the slot 80 lies outwardly of the flexible chain 102 and therefore does not engage the latter. The longitudinal slidable adjustment of each of the fastening apparatus 25 and 26, as hereinbefore described, will permit this longitudinal adjustment of the shafts 19 and 20 so that regardless of each individual length of the arm, the correct longitudinal positioning of both shafts may be obtained without the necessity of relocating the position of the straps 70 and 77.

As has been described hereinbefore, the device 10 is so arranged on the left arm that when the arm is fully straightened in a position it would assume in addressing the ball, the flexible chain 102 is not engaged with the slot 80, thereby permitting free rotation of shaft 19 relative to shaft 20. The arms are then swung rearwardly from their addressed position into the back stroke, the latter position being shown in FIGURE 1 of the drawings and, as has been hereinbefore described, in order to relieve the strain which would be occasioned by a fully stiffened arm, the arm is slightly flexed or bent at the elbow, thereby moving or retracting shaft 19 into shaft 20 which permits the flexible chain 102 to enter the slot 80, the retracting movement of the shaft 19 being halted when said flexible chain 102 is jammed between the base of the slot and the free end 96 of said shaft 20, a position as shown in FIGURE 6. The bending of the arm is therefore limited by the degree of retractive movement of shaft 19 permitted by the operation of the latching mechanism 85, this movement being adjustable by suitably adjusting the position of the shafts 19 and 20 on the fastening apparatus 25 and 26 in the manner hereinbefore described.

When the arms are swung downwardly from the top of the back stroke to hit the ball, the left arm, due to the centrifugal force of the club, automatically straightens to a fully straightened position which results in an extension of shafts 19 and 20 and the disengagement of the chain 102 from the slot 80. The centrifugal force of the swing also acts upon the latch mechanism 85 so that the flexible chain 102 extends longitudinally parallel to the shafts 19 and 20 out of engagement with said slot 80. As the arms and the club travel through the follow-through portion of the stroke, that being the portion of the stroke after the ball is struck, the left arm is pronated. In other words, the hand is rotated from a position in which the back of the hand lies in a vertical plane to a position in which it lies in a horizontal plane. This pronation of the hands results in rotation of the wrist relative to the biceps and consequent rotation of shaft 19 relative to shaft 20, a position as shown in FIGURE 7 of the drawings in which the tongue 82 and slot 80 have been rotated out of alignment with the latch mechanism 85 so that the chain 102 will not engage with said slot, to thereby permit shaft 19 to be retracted inwardly into shaft 20 and, consequently, permit the left arm to fully bend to a position as shown in FIGURE 3 of the drawings. The relative position of shafts 19 and 20 being shown in FIGURE 8 of the drawings.

The device 10 is also provided with a solid steel ball 105 which is free to roll lengthwise of shaft 19, said ball normally lying against plug 28, when the arm is located in the position to address the ball, and rolling lengthwise thereof when the arms are moved to the top of the back-swing to strike the end 106 of a machine screw 107 which threadedly engages and extends through a threaded bore 108 of a plug 109, the latter being spaced apart from plug 28 just ahead of the slot 80. The length of time taken for the ball to roll from plug 28 and strike the end 106 of said screw to make an audible click, approximates the time interval that a golfer should momentarily pause at the top of the back-swing before swinging the club downwardly to strike the ball. It should be noted that said time interval may be adjusted by simply rotating the screw in the plug 109 so as to position its end 106 a selected distance from plug 28.

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The device 10 may also be provided with a small cylindrical rubber roll 110 which is hingedly secured to the retaining member 61 at its end facing the thumb, the purpose of said roll 110 being to act as a buffer between the thumb of the leading hand and the wrist of the following hand and to induce, when squeezed between the hands at the top of the back-swing, a correct grip of the leading hand with the club.

It will be appreciated that the golf swing correcting device as hereinbefore described may be subject to minor structural modifications which may from time to time become necessary or desirable to lower the cost of manufacture of the device and hence the selling price to the public. For example the latch mechanism 85 instead of being longitudinally adjustable relative to the shaft 20, may be secured so as to be non-adjustable relative thereto, the spring steel wire 98 being rotatably secured in any suitable manner to the shaft 20. It will also be apparent that the spring steel wire 98 need not have its elongated end sections 99 crossed in the form of an X, but might extend substantially parallel to each other or at any desired angle to each other. Similarly, the adjustable connection of the shafts 19 and 20 with their associated fastening apparatus 25 and 26, respectively, may be dispensed with. The connection may very well be non-adjustable and the device fabricated having shafts 19 and 20 of varied lengths dependent upon the arm length of the individual wearer.

What I claim as my invention is:

1. A golf swing correcting device for application to a golfer's arm comprising a brace formed of a pair of elongated telescopically arranged members, means to fasten the brace at the wrist and biceps so that it extends across the inside of the elbow, said members being telescopically movable between extended and retracted positions upon movement of the arm between straightened and bent positions and being relatively rotatable to permit pronation of the hand, and mutually engageable locking means on each member located so as to be operatively effective for locking the members in a predetermined position upon their change in relative positions from a fully extended position effected by the tendency of the arm to bend during the back-swing to thereby prevent bending of the arm and to be operatively ineffective upon said members change in relative positions effected by the pronation of the hand in the follow-through portion of the swing, to thereby permit the members to move a retracted position and thereby permit the arm to bend freely.

2. A golf swing correcting device for application to a golfer's arm comprising a pair of fastening elements, one adapted to be secured to the arm at the wrist and the other at the biceps, an elongated cylindrical member being hingedly connected at one end to the wrist fastening element, an elongated tubular sleeve member hingedly connected at one end to the biceps fastening element and adapted to extend at its free end across the inside of the elbow and slidably and rotatably receive the free end of the cylindrical member, said members being telescopically movable between extended and retracted positions upon movement of the arm between straightened and bent positions and being relatively rotatable to permit pronation of the hand, and mutually engageable locking means on each member located so as to be operatively effective for locking the members in a predetermined position upon their change in relative positions from a fully extended position effected by the tendency of the arm to bend during the back-swing to thereby prevent bending of the arm and to be operatively ineffective upon said members change in relative positions effected by the pronation of the hand in the follow-through portion of the swing, to thereby permit the members to move to a retracted position and thereby permit the arm to bend freely.

3. A golf swing correcting device for application to a golfer's arm comprising a pair of fastening elements, one adapted to be secured to the arm at the wrist and the other at the biceps, an elongated cylindrical member

being hingedly connected at one end to the wrist fastening element, an elongated tubular sleeve member hingedly connected at one end to the biceps fastening element and adapted to extend at its free end across the inside of the elbow and slidably and rotatably receive the free end of the cylindrical member, said members being telescopically movable between extended and retracted positions upon movement of the arm between straightened and bent positions and being relatively rotatable to permit pronation of the hand, a first locking element mounted on the sleeve member, and a second locking element in the cylindrical member engageable with the first element, said locking elements being located on their respective members so as to be operatively effective for locking the members in a predetermined position upon their change in relative positions from a fully extended position effected by the tendency of the arm to bend during the back-swing to thereby prevent bending of the arm and to be operatively ineffective upon said members change in relative positions effected by the pronation of the hand in the follow-through portion of the swing, to thereby permit the members to move to a retracted position and thereby permit the arm to bend freely.

4. A golf swing correcting device for application to a golfer's arm comprising a pair of fastening elements, one adapted to be secured to the arm at the wrist and the other at the biceps, an elongated cylindrical member being hingedly connected at one end to the wrist fastening element and having a transversely extending slot formed thereacross, an elongated tubular sleeve member hingedly connected at one end to the biceps fastening element and adapted to extend at its free end across the inside of the elbow and slidably and rotatably secure the free end of the cylindrical member, said members being telescopically movable between extended and retracted positions upon movement of the arm between straightened and bent positions and being relatively rotatable to permit pronation of the hand, and a latch swingably mounted on the sleeve

member normally extending towards and riding on the cylindrical member, said cylindrical member being rotatably and relatively positioned so that the latch will align itself with the slot to engage the latter upon predetermined retractable movement of the members due to a predetermined bending of the arm from its straightened position during the back-swing, said members upon pronation of the hand in the follow-through portion of the stroke being adapted to rotate relative to each other so as to rotatably move the latch relative to the slot to a non-aligned position, thereby permitting said member to move to a retracted position and thereby permitting the arm to bend freely.

5. A golf swing correcting device as claimed in claim 4 in which the cylindrical member is of hollow construction and includes a ball movable by gravity between fixed stops in said cylindrical member, said ball being adapted to give audible evidence of its impact upon striking one of said stops.

6. A golf swing correcting device as claimed in claim 5 in which one of said stops is movable longitudinally of the cylindrical member to thereby vary the distance the ball travels between said stops and hence the time interval taken by the ball to move from one stop to the other.

7. A golf swing correcting device as claimed in claim 4 including buffer means securable to the wrist fastening element so that it may be squeezed between the golfer's hands, whereby the golfer is urged to maintain a firm grip of his leading hand on the golf club.

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G. J. MARLO, *Assistant Examiner*.