



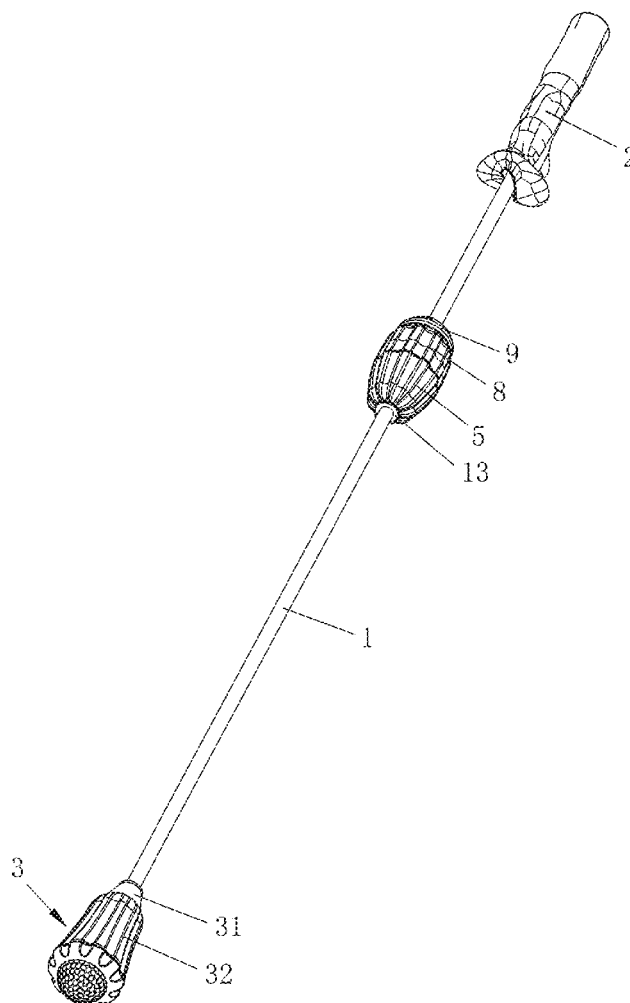
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(19) **United States**(12) **Patent Application Publication**
WANG(10) **Pub. No.: US 2017/0291090 A1**(43) **Pub. Date: Oct. 12, 2017**(54) **GOLF SWING TRAINER**(71) Applicant: **Jonathan WANG**, Hayward, CA (US)(72) Inventor: **Jonathan WANG**, Hayward, CA (US)(21) Appl. No.: **15/210,014**(22) Filed: **Jul. 14, 2016**(30) **Foreign Application Priority Data**

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(2013.01)(57) **ABSTRACT**

A golf swing trainer apparatus for straightening or otherwise improving a golf swing. The golf swing trainer may include a rod, a handle connected on one end of the rod, a bulb disposed on the other end of the rod, and a magnetic base positioned in the middle of the rod. An impact sliding block may be constrained to move on the rod between the bulb and the magnetic base, and may be held in a rest position by the magnetic base. When the user makes a stroke with the trainer apparatus, the impact sliding block may be forced downward from the magnetic base and may impact the bulb, making a sound to provide the user with feedback about their golf swing.



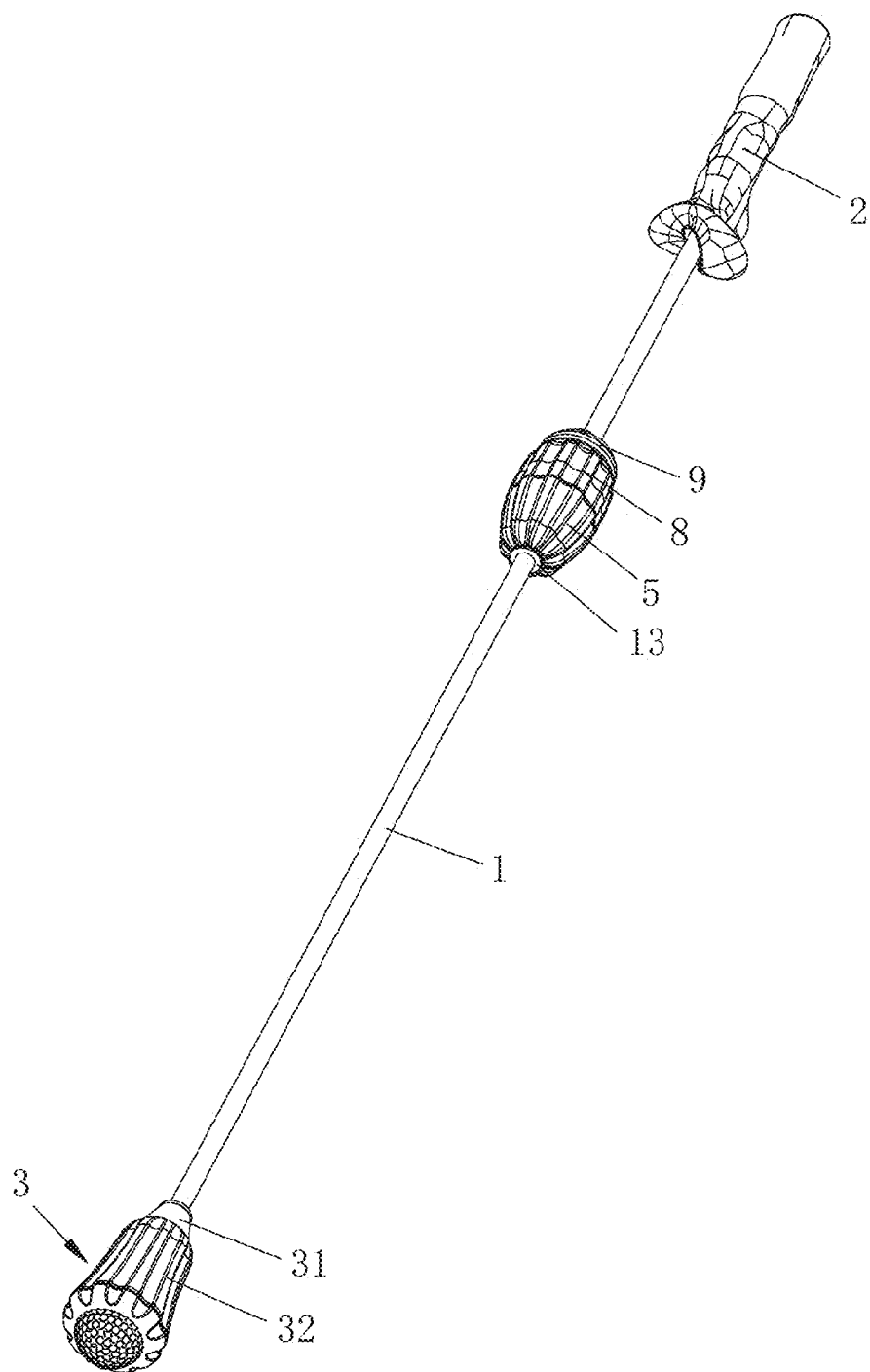


Fig. 1

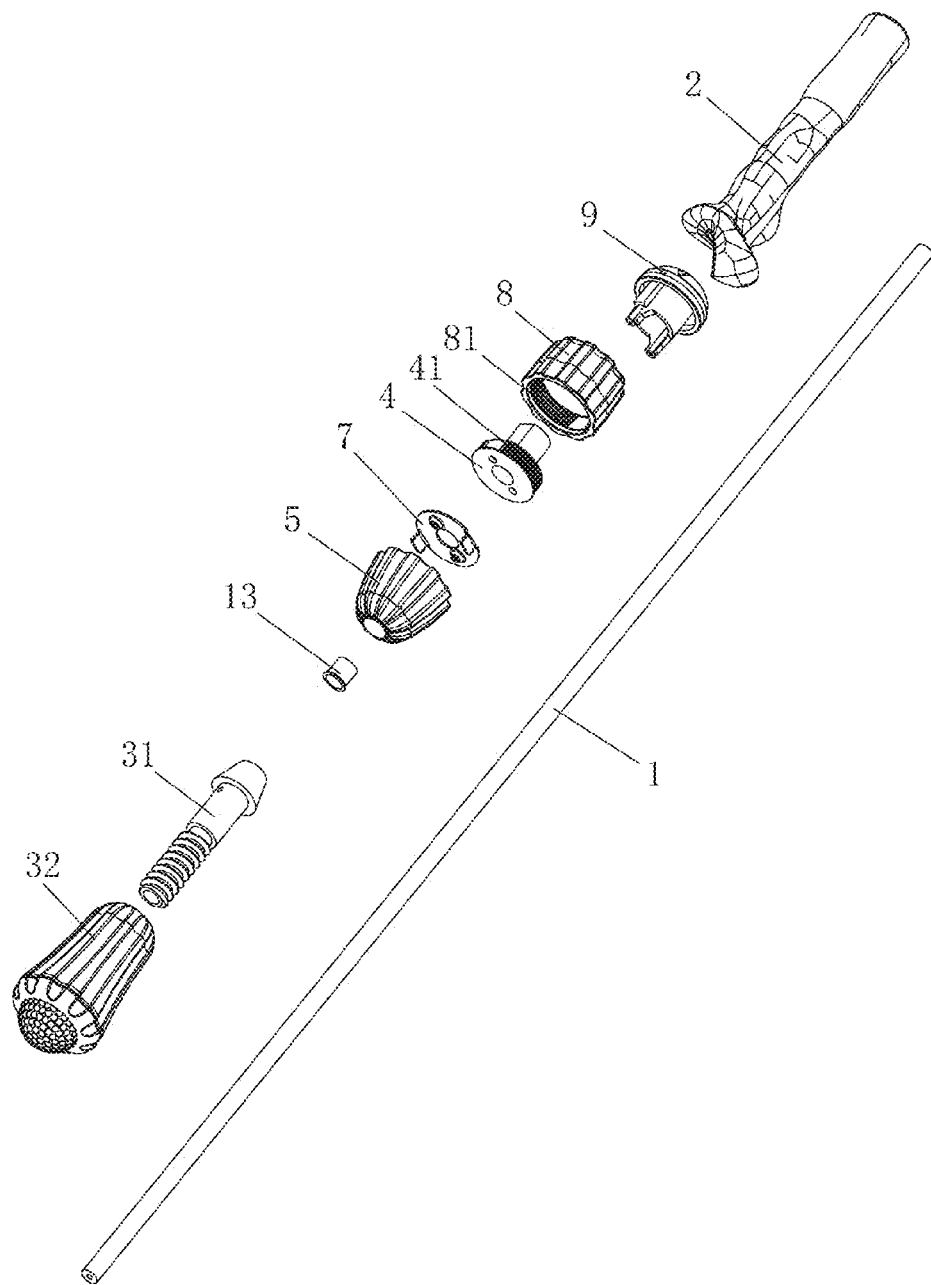


Fig. 2

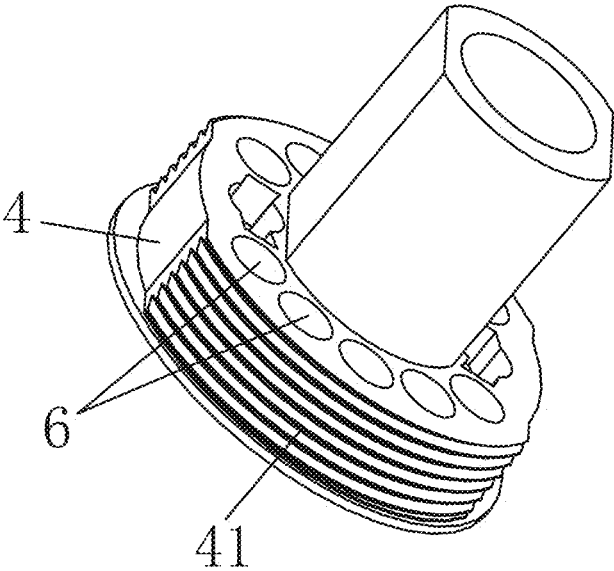


Fig. 3

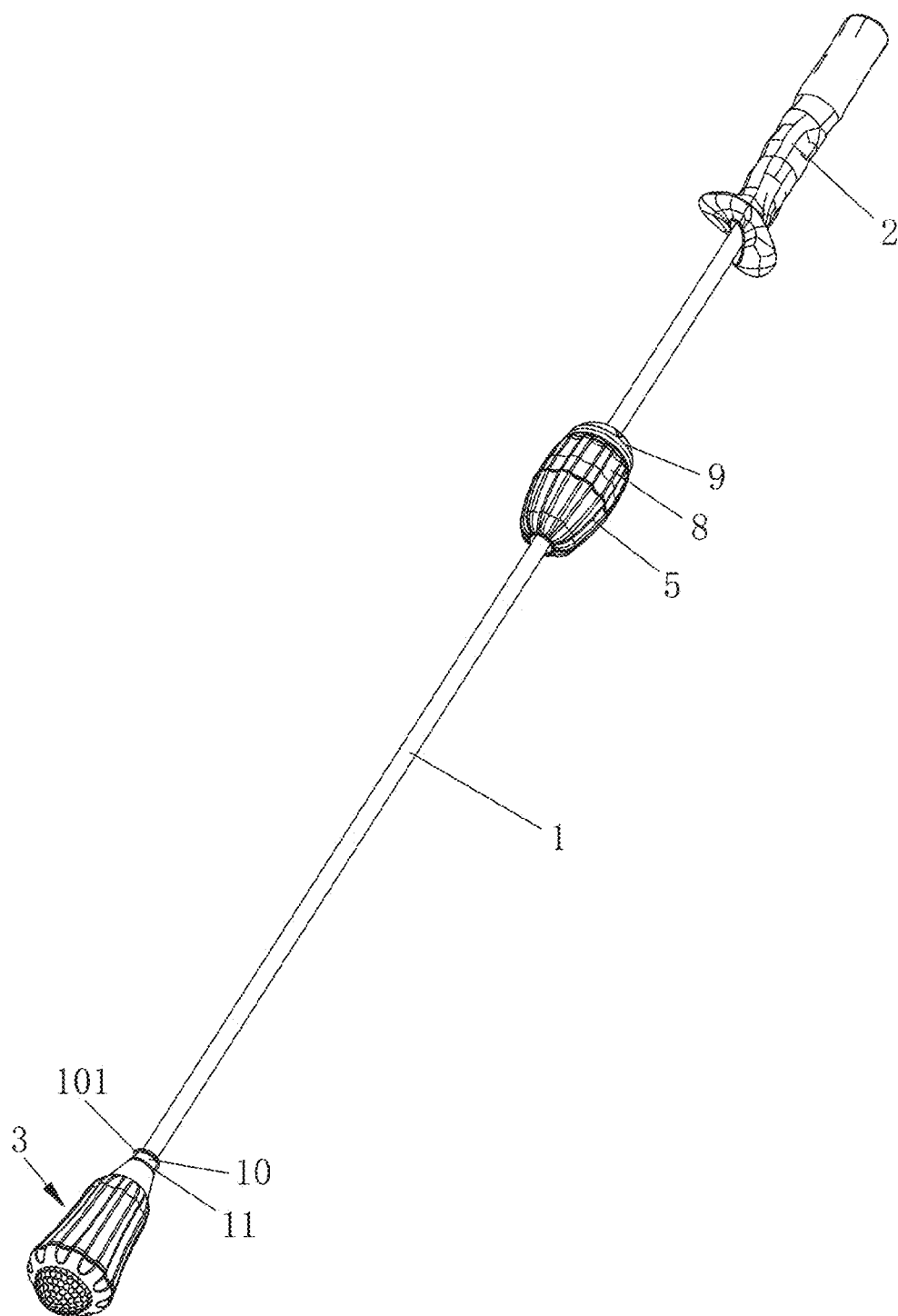


Fig. 4

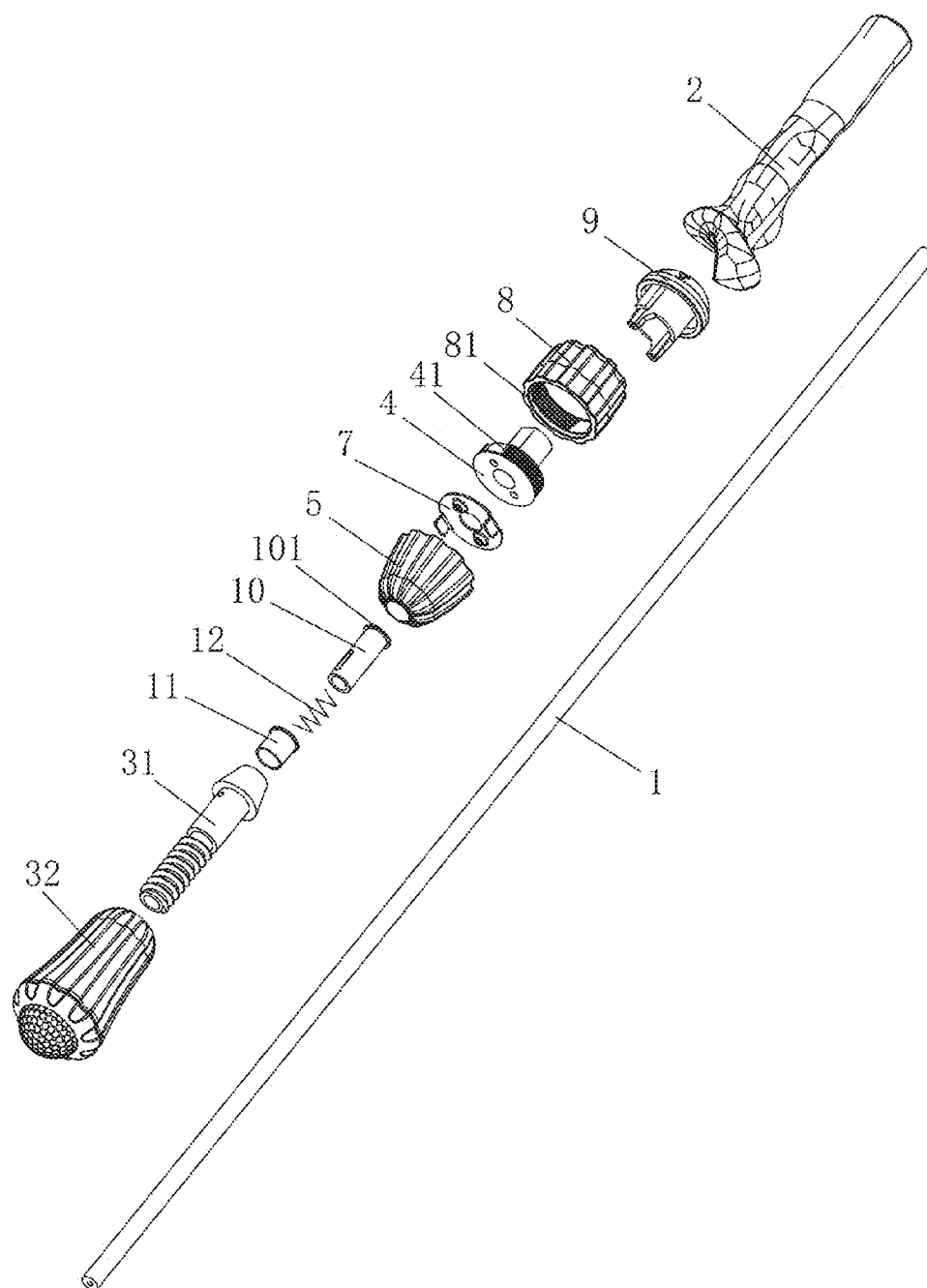


Fig. 5

GOLF SWING TRAINER

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application claims priority from Chinese Patent Application No. 201620305207, entitled “Golf Swing Straightener,” filed on Apr. 12, 2016, the entire contents of which are hereby incorporated by reference.

BACKGROUND

[0002] One of the key ways for a golfer to create solid, powerful shots is to keep the head of the club lagging behind their hands as they swing down to the ball. Preserving this lag for a longer time will generate more speed and will cause the ball to go further when it is contacted by the club and the golfer releases the lag.

[0003] A golfer can create lag by cocking their wrists at the top of their backswing, and then maintaining most of the wrist cock until the club is near the impact area. For example, a golfer wishing to create lag may maintain a light grip on the club, and may keep their wrists relaxed. In doing so, they may effectively cause their wrists to act as an unpowered hinge, cocking their wrists on the backswing and uncocking them at some point on the forward swing.

[0004] Players may also be able to use the flex of the rod to generate lag. During a swing, the rod of a golf club may become “loaded,” which means that it is resisting the golfer’s swing by flexing in the opposite direction of their swing. When the head of the club contacts the ball, the club may straighten, or “unload,” and add additional power to the swing. “Loading” of a club can be maximized by a skilled golfer making a sudden change in the direction of their stroke; that is, the golfer may start the downswing of the forward swing immediately after the backswing, and before the club head has finished the backswing.

[0005] Yet another way to increase lag may be a technique called the “two-plane swing.” In this approach, the player may swing the club back on one plane, then may drop to a lower plane when they change direction and begin the downswing. This may help alleviate a problem felt by many golfers, wherein centrifugal force causes their wrists to uncock too early by causing the golfer’s hands to move sideways as well as parallel to the original plane.

[0006] A golfer that develops a degree of lag in their swing can usually measurably improve the power of their strokes and can significantly increase the distance that any one of their shots will travel. However, many players struggle with a lack of distance because they do not understand how lag is created. Other golfers may poorly utilize any lag that they create by releasing it at an inopportune time; for example, they may release their lag halfway through their forward swing, before the head of the club is anywhere near the ball. Still other golfers may find it difficult to master the sort of change in direction that can provide additional lag to their swing, or may be unable to master the “two-plane swing.”

SUMMARY

[0007] According to an exemplary embodiment, a golf swing trainer or golf swing straightener may be provided that provides for an accurate simulation of a golf swing. This may allow an incorrect swing gesture or an incorrect application of a player’s strength to be observed immediately,

allowing the player to achieve better effects from their practice away from the golf course.

[0008] In an exemplary embodiment, a golf swing trainer may include a rod, a handle connected on the rear end of the rod, and a bulb connected on the front end of the rod. A magnetic base may be fixed on the rod, with a position sliding sleeve provided on the rod between the magnetic base and bulb. The position sliding sleeve may be provided with an impact sliding block capable of colliding with the bulb and producing sound. The impact sliding block and the magnetic base may be paired with a magnetic force, which may be overcome by the force of a practice swing of a user.

[0009] According to an exemplary embodiment, the impact sliding block and the magnetic base may be paired with a magnetic force created by disposing a powerful magnet or “super-magnet” in or on the magnetic base, and disposing a magnetic material, such as an iron plate, in or on the end of the impact sliding block. According to an exemplary embodiment, more than one such magnet may be used; such magnets may be arranged around the end face of the magnetic base in the circumferential direction.

[0010] According to an exemplary embodiment, a turning sleeve may be arranged outside the magnetic base. This sleeve may be connected to the magnetic base with a threaded connection; for example, an internal thread may be provided on the inside of the turning sleeve, and an external thread may be provided on the outside of the magnetic base. An end of the turning sleeve may extend past the magnetic base in the direction of the bulb, which may operate as a spacer and may serve to space apart the magnetic base and the impact sliding block when the impact sliding block is near to the magnetic base, which may affect the amount of force that is required of a user in order to overcome the magnetic connection of the impact sliding block and the magnetic base. A user may turn this sleeve in order to determine the amount of force that is actually required in order to overcome the magnetic connection.

[0011] In an exemplary embodiment, the range over which a user may be able to adjust the turning sleeve may be limited by a limiting base. Limiting base may be firmly connected to the magnetic base, and may have a portion past which the turning base is not able to extend, preventing the turning base from being adjusted past the maximum set by the limiting base.

[0012] According to an exemplary embodiment, the golf club trainer may have a metal sliding impact device disposed on one end of the impact striking block, which may have an internal sleeve and which may be disposed around the rod. In one exemplary embodiment, the bulb of the golf swing trainer may have a counterweight head fixed on the rod, and an adjustable decoration shell connected to the front end of the counterweight head and removable from the rod, for example via a threaded connection. In another exemplary embodiment, the golf club trainer may have a metal fixed impact device fixed on the rear end of the bulb and a metal sliding impact sleeve connected by a spring to the bulb, both of which may be disposed around the rod, and may be configured so that when the metal sliding input sleeve is struck with sufficient force, the metal sliding impact sleeve and the metal fixed impact device are brought into contact and a sound is heard.

BRIEF DESCRIPTION OF THE FIGURES

[0013] A more complete appreciation of the present invention and many of the attendant advantages thereof will be readily understood as the same becomes better understood by reference to the following detailed description when considered in connection with the accompanying drawings, wherein:

[0014] FIG. 1 depicts a structural schematic diagram of an exemplary embodiment of a golf swing trainer.

[0015] FIG. 2 depicts a decomposition schematic diagram of an exemplary embodiment of a golf swing trainer.

[0016] FIG. 3 depicts a structural schematic diagram of an exemplary embodiment of a magnetic base of a golf swing trainer.

[0017] FIG. 4 depicts a structural schematic diagram of an exemplary embodiment of a golf swing trainer.

[0018] FIG. 5 depicts a decomposition schematic diagram of an exemplary embodiment of a golf swing trainer.

DETAILED DESCRIPTION

[0019] Aspects of the invention are disclosed in the following description and related drawings directed to specific embodiments of the invention. Alternate embodiments may be devised without departing from the spirit or the scope of the invention. Additionally, well-known elements of exemplary embodiments of the invention will not be described in detail or will be omitted so as not to obscure the relevant details of the invention. Further, to facilitate an understanding of the description discussion of several terms used herein follows.

[0020] As used herein, the word “exemplary” means “serving as an example, instance or illustration.” The embodiments described herein are not limiting, but rather are exemplary only. It should be understood that the described embodiments are not necessarily to be construed as preferred or advantageous over other embodiments. Moreover, the terms “embodiments of the invention”, “embodiments” or “invention” do not require that all embodiments of the invention include the discussed feature, advantage or mode of operation.

[0021] Referring now to exemplary FIG. 1, FIG. 1 depicts a structural schematic diagram of an exemplary embodiment of a golf swing trainer. According to an exemplary embodiment, a golf swing trainer may include a rod 1, a handle 2 connected on the rear end of rod 2, and a bulb 3 connected on the front end of the rod 1. In an embodiment, a magnetic base 4 may be fixed on the rod 1, and a position sliding sleeve, which may support an impact sliding block 5, may be provided on the rod 1 between the magnetic base 4 and the bulb 3. According to an exemplary embodiment, impact sliding block 5 may be capable of sliding up and down the rod on the position sliding sleeve, which may thereby make the impact sliding block capable of colliding with the bulb 3 and producing sound.

[0022] According to an exemplary embodiment, the impact sliding block 5 and the magnetic base 4 may be coupled via one or more magnets, including one or more “super-magnets,” which may be, for example, rare earth magnets. In such an embodiment, when a user of the golf swing trainer swings the golf swing trainer, and when they do so with the correct swing stance and correctly utilize their strength, the impact sliding block 5 may be separated from magnetic suction connection of the magnetic base 4. This

may cause the sliding block 5 to slide to the bulb 3, causing it to collide with the bulb 3, thereby producing a sound. In an embodiment, the rod 1 may contribute to producing sound, and sound may be produced along the rod 1; according to such an embodiment, the rod may be substantially rigid, or may be constructed as desired. The production of this sound by the golf swing trainer may contribute to the realism of a practice swing, and make it seem like the user of the golf swing trainer has really hit the ball; this may allow the user to make use of multiple senses, such as the sound of the impact or feedback from the rod, to better correct their swing action. This may allow substandard swing action of users to be more effectively corrected, allowing the users to better employ their strength when hitting the ball.

[0023] Turning now to FIG. 2, FIG. 2 depicts a decomposition schematic diagram of an exemplary embodiment of a golf swing trainer, which may show certain internal mechanisms of the golf swing trainer. According to an exemplary embodiment, a turning sleeve 8 may be arranged outside the magnetic base 4. An external thread 41 may be set on the external circumferential surface of the magnetic base 4. An internal thread 81, which may mesh with external thread 41 and which may connect with external thread 41 when the golf swing trainer is assembled, may be arranged on the internal circumferential surface of the turning sleeve 8.

[0024] In an exemplary embodiment, the front end of turning sleeve 8 may extend out of the front end face of the magnetic base 4. The front end face of the turning sleeve 8 may couple, via magnetic force, the impact sliding block 5, which may cause the impact sliding block 5 to be held in place unless other force is applied.

[0025] In an exemplary embodiment, a user may make use of the threaded connection between the turning sleeve 8 and the magnetic base 4 in order to change the behavior of the golf swing trainer. For example, in an exemplary embodiment, a user of the golf swing trainer may be able to rotate the turning sleeve 8 in order to adjust the distance between the front end of the turning sleeve 8 and the magnetic base 4, which may in turn adjust the distance between the impact sliding block 5 and the magnetic base 4 when the impact sliding block 5 is held against the magnetic base 4. This may in turn affect the magnetic force between the impact sliding block 5 and the magnetic base 4 when the impact block 5 is held against the magnetic base 4, thereby adjusting the swing strength that is needed to overcome this force. In an exemplary embodiment, a limiting base 9 may be set behind the turning sleeve 8; limiting base 9 may be firmly connected with the magnetic base 4 and may be used to limit the adjusting direction of the turning sleeve 8, preventing it from being overadjusted. In an exemplary embodiment, such a configuration may serve to provide a compact and unobtrusive structure by which the impact sliding block 5 may be held at an intermediate position on the golf swing trainer.

[0026] Turning now to exemplary FIG. 3, FIG. 3 depicts a structural schematic diagram of an exemplary embodiment of a magnetic base of a golf swing trainer. In an exemplary embodiment, a magnet 6, such as a “super-magnet,” may be arranged on the magnetic base 4. The rear end of the impact sliding block 5 may be constructed from or may house a magnetic material, such as a metal washer or iron sheet 7; iron sheet 7 may be coupled to the super-magnet 6 via a magnetic force when the golf swing trainer is at rest. In an

exemplary embodiment, a number of super-magnets **6** may be arranged on the end face of the magnetic base **4** along the circumferential direction. This may cause the magnetic force applied by the super-magnet **6** to the iron sheet **7** to be stronger or more evenly distributed, as desired.

[0027] Referring now generally to FIGS. 1-3, according to an exemplary embodiment, a bulb **3** of a golf swing trainer may include a counterweight head **31**, which may be fixed on the rod **1**, and a decoration shell **32**, which may be connected on the front end of the counterweight head **31**. In an exemplary embodiment, the decoration shell **32** may be connected with the counterweight head **31** through a threaded connection. In an exemplary embodiment, a user may be able to replace the decoration shell **32** with a different design of decoration shell **32** according to the user's interest, which may improve user satisfaction with the golf swing trainer and stimulate the user's interest in the golf swing trainer.

[0028] In an exemplary embodiment, a metal sliding impact device **13** may be fixed on the front end of the impact sliding block **5**. When a user causes the impact sliding block **5** to separate from the magnetic base **4**, the metal sliding impact device **13** may be collided with the counterweight **31**, which may produce a sound. This may be used to, for example, provide auditory feedback to the user that they have simulated hitting a golf ball.

[0029] Turning now to exemplary FIG. 4, FIG. 4 depicts a structural schematic diagram of an exemplary embodiment of a golf swing trainer. In an exemplary embodiment, a counterweight **31** may include, or may be replaced by a mechanism that includes, a plurality of parts. According to such an embodiment, a metal fixed impact sleeve **11** may be fixed on the rear end of the bulb **3**. A metal sliding impact sleeve **10** may in turn be connected to the metal fixed impact sleeve **11**, and may be arranged such that the metal sliding impact sleeve **10** may slide to some extent up and down the rod **1**. In an exemplary embodiment, the metal sliding impact sleeve **10** may be arranged such that the rear end of the metal sliding impact sleeve **10** may be brought into contact with the upward-facing portion of the metal fixed impact sleeve **11**, and an impact part **101** capable of impacting with the metal fixed impact sleeve **11** may be arranged at the rear end of the metal sliding impact sleeve **10**.

[0030] Turning now to exemplary FIG. 5, FIG. 5 depicts a decomposition schematic diagram of an exemplary embodiment of a golf swing trainer. In the embodiment shown in FIG. 5, the metal sliding impact sleeve **10** and the bulb **3** may be connected to one another by an elastic connector, such as one or more springs **12**. When the golf swing trainer is swung, the impact sliding block **5** may be separated from the magnetic connection of the magnetic base **4**, and may slide along the rod **1**. When the impact sliding block **5** reaches the end of the rod **1**, the impact sliding block **5** may come into contact with the sliding impact sleeve **10**, which the impact sliding block **5** may cause to slide in the direction of the bulb **3**. According to such an exemplary embodiment, the spring **12** may be compressed and may absorb some or all of the kinetic energy of the impact sliding block **5** when this occurs, ensuring that the impact sliding block **5** does not cause the sliding impact sleeve **10** to come into contact with the metal fixed impact sleeve **11** unless the force of the user's swing is sufficiently great to overcome the spring.

[0031] When the user swings the golf swing trainer in a way that imparts a great enough force to the impact sliding block, the impact sliding block **5** may have enough kinetic energy to overcome the elasticity of the spring **12**, which may drive the sliding impact sleeve **10** to collide with the metal fixed impact sleeve **11**, thereby producing a sound. In an exemplary embodiment, the spring **12** may cause the impact sliding block **5** to rebound and be sent back upwards to the magnetic base **4**, which may pull the impact sliding block **5** back to its starting position. When the swing strength is not enough to overcome the spring **12**, the impact sliding block **5** can rebound and be sent back to the magnetic base **4**, without driving the sliding impact sleeve **10** to collide with the fixed impact sleeve **11** and without producing a sound. This may serve to require the user to use a sufficient amount of strength when swinging the golf swing trainer in order to produce a satisfactory result, namely the sliding impact sleeve **10** impacting the metal fixed impact sleeve **11**, which may motivate the user to improve their swing strength.

[0032] Other features may also be appreciated from an examination of the Figures. For example, according to an exemplary embodiment, the rod **1** may be hollow, if desired, and may be constructed from a single piece, if desired. Rod **1** may also be removably coupled to the other components of the golf swing trainer, such as the grip **2** or the bulb **3**, allowing components of the golf swing trainer to be replaced, if desired. This may also allow certain components, such as the magnetic base **4**, to be adjusted in position on the rod, if desired. The grip **2** of the golf swing trainer may be molded into a particular shape; for example, according to an exemplary embodiment, the user may be required to hold the molded grip **2** of the golf swing trainer in a particular hand position, increasing the potential of the golf swing trainer to train a user in proper technique.

[0033] The foregoing description and accompanying figures illustrate the principles, preferred embodiments and modes of operation of the invention. However, the invention should not be construed as being limited to the particular embodiments discussed above. Additional variations of the embodiments discussed above will be appreciated by those skilled in the art (for example, features associated with certain configurations of the invention may instead be associated with any other configurations of the invention, as desired).

[0034] Therefore, the above-described embodiments should be regarded as illustrative rather than restrictive. Accordingly, it should be appreciated that variations to those embodiments can be made by those skilled in the art without departing from the scope of the invention as defined by the following claims.

The following list of claims replaces any prior listing of claims:

1. A golf swing trainer apparatus, comprising:
 - a rod, the rod having an upper end and a lower end;
 - a handle disposed on the upper end of the rod, the handle having a grip;
 - a lower retaining element disposed on the lower end of the rod, the lower retaining element having a lower retaining element body portion and a counterweight head, the counterweight head fixedly facing in the direction of the upper end of the rod and being disposed around a circumference of the rod;

an upper retaining element disposed on the rod at a point between the lower and the upper end of the rod, the upper retaining element comprising a magnetic base facing in the direction of the lower end of the rod; and an impact sliding block, the impact sliding block having a center hole through which the rod is disposed, the impact sliding block further being configured to move along a portion of the rod between the counterweight head of the lower retaining element and the magnetic base of the upper retaining element, wherein each of the counterweight head of the lower retaining element and the magnetic base of the upper retaining element have a larger cross-section than the center hole of the impact sliding block, the impact sliding block further having a sliding impact device coupled to an end of the impact sliding block facing in the direction of the counterweight head of the lower retaining element, wherein a flat surface of the sliding impact device is configured to contact a flat surface of the counterweight head.

2. The golf swing trainer apparatus of claim 1, wherein the magnetic base comprises one or more magnetic elements, and wherein the impact sliding block has a plate of magnetic material disposed on an end of the impact sliding block that faces the magnetic base.

3. The golf swing trainer apparatus of claim 2, wherein the magnetic elements comprise a plurality of rare earth magnets disposed around a circumference of the magnetic base.

4. The golf swing trainer apparatus of claim 1, further comprising:

a turning sleeve disposed around the magnetic base, the magnetic base having an external thread disposed around its external circumference, the turning sleeve having an internal thread disposed around its inner circumference, the internal thread of the turning sleeve and the external thread of the magnetic base configured to interlock;

wherein the turning sleeve and the magnetic base each have a lower end and an upper end, the lower end of

each of the turning sleeve and the magnetic base facing in the direction of the lower retaining element, and the upper end of each of the turning sleeve and magnetic base facing in the direction of the handle; and

wherein the lower end of the turning sleeve extends past the lower end of the magnetic base.

5. The golf swing trainer apparatus of claim 4, further comprising a limiting base, the limiting base being fixedly coupled to the magnetic base and extending above the upper end of the turning sleeve.

6. The golf swing trainer apparatus of claim 1, wherein the lower retaining element comprises a decoration shell that is removably coupled to the counterweight head.

7. The golf swing trainer apparatus of claim 1, wherein the sliding impact device is a metal sliding impact device, and the remaining portion of the impact sliding block is constructed from a nonmetallic material.

8. The golf swing trainer apparatus of claim 1, wherein the lower retaining element comprises a bulb having a lower end and an upper end, a metal fixed impact sleeve fixed on the upper end of the bulb, and a metal sliding impact sleeve, the metal impact sleeve having an upward-facing impact part, the metal sleeve being connected to the bulb by a spring;

wherein each of the metal fixed impact sleeve and the metal sliding impact sleeve are disposed around the circumference of the rod, and wherein the metal fixed impact sleeve and metal sliding impact sleeve are disposed sequentially on the rod and held apart by the spring.

9. The golf swing trainer apparatus of claim 1, wherein the rod has a molded grip configured to hold the hands of the user in an optimal swing position.

10. The golf swing trainer apparatus of claim 1, wherein the position of the upper retaining element on the rod is adjustable.

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