July 9, 1963 C. S. BASSIN 3,096,982

ADJUSTABLE GOLF CLUB

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Fig. 1

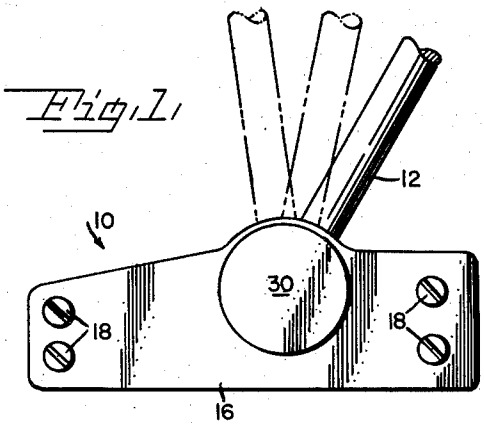


Fig. 2

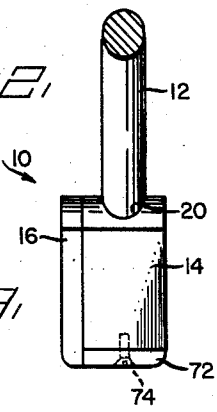


Fig. 3

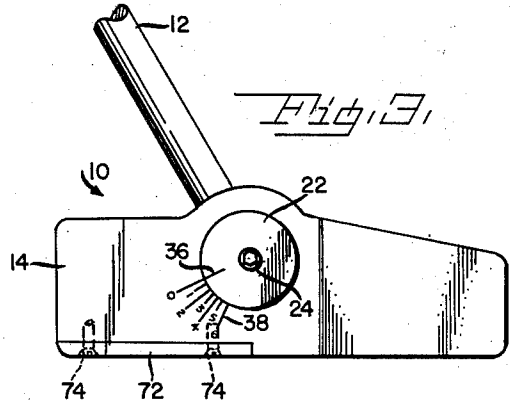


Fig. 4

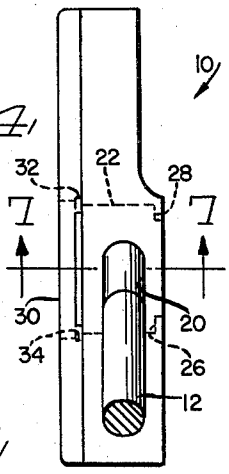


Fig. 5

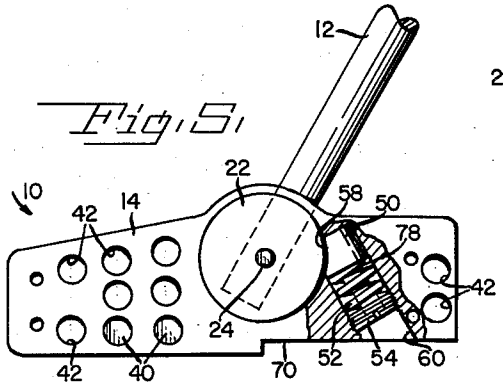


Fig. 6

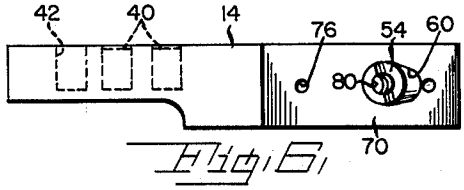


Fig. 8

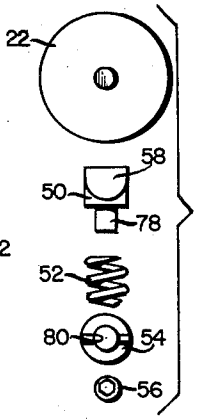
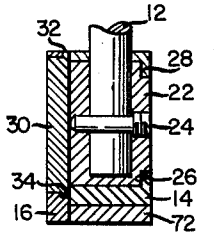


Fig. 7



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ADJUSTABLE GOLF CLUB

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Fig. 10.

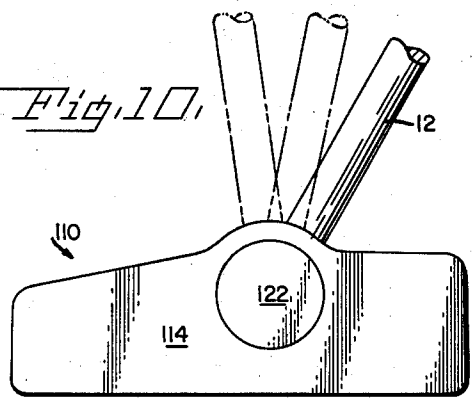


Fig. 11.

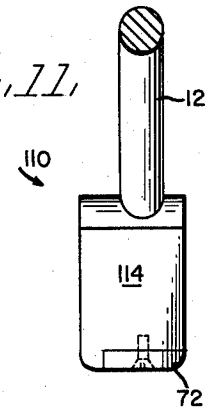
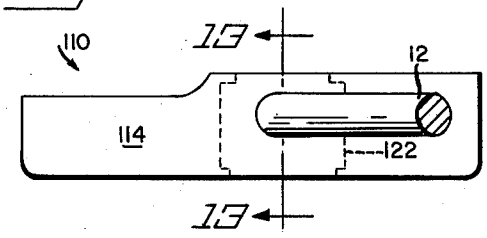


Fig. 12.



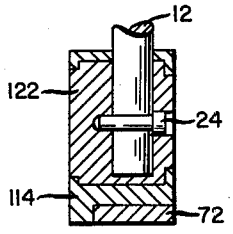
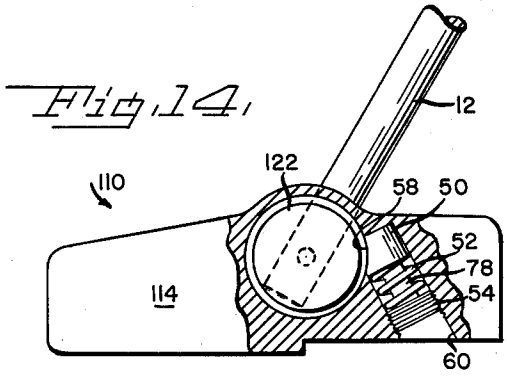


Fig. 13.

Fig. 14.



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3,096,982

ADJUSTABLE GOLF CLUB

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9 Claims. (Cl. 273—80.1)

The present invention relates generally to new and useful improvements and structural refinements in a golf club and is directed more particularly to the provision of a putter having a means for permitting the adjustment of the angle of the club shaft relative to the club head in manner so that the club can be adapted to the man and the man does not have to adapt himself to the club, this being a necessity inasmuch as the individual physical characteristics and requirements of each player vary so greatly that the fixed position of angularity of the shaft of presently available putters will not necessarily comfortably satisfy any two players.

By the means of this invention, the shaft may be angularized, relative to the head, to any one of a plurality of positions, depending upon the desires of the individual player, it being a primary object of the invention to provide a golf club which may be so modified and adjusted as to meet current United States Golf Association regulations as concern a fixed shaft for match play.

Without intending to place undue limitations upon the scope of the invention beyond what may be required by the state of the prior art, the particular embodiment may be briefly described as embracing the concept of an adjustable putter having a novel pivot means coacting with the shaft and head thereof whereby the angle of the shaft relative to the head may be adjusted, and wherein said head carries a "sweet spot" disc aligned with a pivotal drum whereby improved accuracy in putting may be attained.

Another object hereof is to provide a putter which may be properly balanced according to the angularization of the shaft wherefore, regardless of the angle assumed by the shaft, the putter may be easily and readily adjusted as to its balance by the addition of weights to or the deletion of weights from the club head. By this process, the putter may be so balanced as to produce a true pendulum effect, thereby assisting the player in maintaining the desired line of travel as he addresses the ball.

Still another feature worthy of particular notice is that the shaft may be fixed relative to the club head by means of a novel locking means disposed within the head in manner whereby the angle of the shaft relative to the head cannot be easily changed during match play, all so as to better satisfy the requirements of the U.S.G.A.

Another object hereof is to provide a club wherein the balance thereof may be shifted, such that a tendency to tilt forwardly or rearwardly may be imparted to the head, all depending upon the particular combination of weights employed by the player during the particular round of play. This shifting in the balance of the club serves to better adapt the club to the particular characteristics of the playing habits of the player, it being apparent, as aforementioned, that the player should not be required to adapt himself to the club, but, conversely, that the club should be adapted to the player, no two players being alike, as to the playing positions which they assume on the golf course.

Herein, the club head is moved about the shaft to effectuate any desired change of balance, the head being so weighted as to be rebalanceable after the proper shaft angularization has been determined.

In actuality, the shifting of weight within the club head is related to the degree of angularization of the shaft. As the angle of the shaft relative to the head is changed,

the weight within the head is accordingly shifted to maintain the club in proper balance at all times.

The degree of angularization of the shaft will be that which best suits the individual player, and which he finds to be most comfortable for himself.

A feature worthy of particular notice, is that the impact point on the striking face, sometimes called the "sweet spot," lies in the plane of the center line of the shaft, i.e., that plane passing through the center line of the shaft and extending longitudinally of the head and perpendicular to the line of play of the club and disposed at a vertical height on the striking face above the base line, which becomes the ground line at the moment of impact, and which is a function of the radius of the ball and the angle of the striking face of the club.

These foregoing objects and other incidental ends and advantages will be better understood in the progress of the disclosure below.

To the end of attaining these objects and advantages and others hereinafter reasonably appearing, it will be explained that the invention consists substantially in the combination, construction, configuration, location and function of parts, as herein described in detail. The physical embodiment delineated, albeit the preferred exemplification, is indicative of but one of a multiplicity of ways in and purposes for which the principles of the invention may be employed. Same is submitted as the best known embodiment of the invention with a view to explaining the principles of the invention and their embodiment for practical use, in order that others skilled in the art may be enabled to adapt and modify same in other modifications, as may be best adapted to the conditions of any particular use.

While all of the objects of the invention are attainable in the preferred and disclosed embodiment, it is to be understood that, by utilizing the invention only in certain of its aspects, certain of the objects may be attained individually or in sub-groups, without necessarily attaining all of the objects hereof. That is, while the advantages of the invention as here outlined as best realized when all of its features and instrumentalities are combined, useful embodiments may be produced involving less than the whole.

The invention is not to be considered as restricted or confined to such embodiment and same is not intended to be exhaustive of, nor limiting of, the spirit or scope hereof. The drawings hereof need not be slavishly followed inasmuch as the golf club may be alternatively constructed or modified and such alternative constructions and/or modifications are intended to be comprehended within the meaning and purview and range of equivalence of the below subjoined claims.

In said drawings:

FIG. 1 is a fragmentary front elevational view of a golf club of the present invention, with only the lower portion of the club shaft being shown;

FIG. 2 is a fragmentary end elevational view of the structure, taken from the right as viewed in FIG. 1;

FIG. 3 is a fragmentary elevational view of the structure, taken from the rear as viewed in FIG. 1;

FIG. 4 is a fragmentary top plan view of the structure shown in FIG. 1;

FIG. 5 is an elevational view, similar to FIG. 1, with the impact face and retaining plate having been removed for purpose of illustrating certain features of the invention;

FIG. 6 is a bottom plan view of the structure shown in FIG. 5;

FIG. 7 is a sectional view taken on the line 7—7 of FIG. 4;

FIG. 8 is an exploded view of the combination tensioning and locking assembly of the invention;

FIG. 9 is a sectional view of the tensioning disc and locking screw of the invention;

FIG. 10 is a fragmentary front elevational view of a modified form of the golf club of the present invention, with only the lower portion of the club shaft being shown;

FIG. 11 is a fragmentary end elevational view of the modified structure, taken from the right as viewed in FIG. 10;

FIG. 12 is a fragmentary top plan view of the modified structure shown in FIG. 10;

FIG. 13 is a sectional view taken on the line 13—13 of FIG. 12; and

FIG. 14 is an elevational view, similar to FIG. 10, with portions of the club head having been broken away for purposes of clarity.

In the following description and in the appended claims, various components and details thereof will be identified by specific names for purposes of convenience, such being employed for purposes of identifying various components. They are used in a descriptive sense only, and are intended to be as generic in their application as the art will permit. They are not intended to exclude any reasonable equivalents of the features shown and described or portions thereof.

With continued reference now to the drawings, I have shown a golf club or putter comprising a head, generally indicated by **10**, and a shaft **12**.

Said head **10** will preferentially be of generally rectangular configuration and will include a main body **14** and a forwardly-facing impact plate **16** held in face-to-face contact therewith as by screws **18** engageable in appropriately-aligned, threaded, openings provided in said main body and impact plate. Said impact plate will be disposed at the forward face of said main body so as to be positioned parallel to the longitudinal axis thereof.

The upper planar wall of the main body **14** is provided with an inwardly-extending, elongated, slot **20**, best shown in FIG. 4, which is of substantially the same width as the diameter of the lower extremity of shaft **12** extendable therethrough. The shaft **12** is receivable in a suitable opening in an annular drum **22** journalled in a transversely-extending drum opening provided in and centrally of said main body.

Shaft **12**, preferentially though not obligatorily, will be fixed to drum **22** by means of a locking pin or screw **24** or the like threaded in appropriately-aligned, transversely-extending, openings provided in said drum and shaft.

The drum opening in said main body is of smaller diameter at the outermost rearward face of the main body and inwardly thereof for a short distance in manner to provide an annular shoulder **26** against which a complemental shoulder **28** provided on the rearmost face of drum **22** may abut so as to limit rearward movement of said drum relative to said main body, the neck of said drum serving as a cylindrical trunnion journalled within the smaller diameter of said drum opening adjacent the rearward face of said main body.

An annular impact disc **30**, formed from metal or plastic or Micarta or equivalent material, is tightly receivable in a central transversely-extending impact disc opening provided in impact plate **16**, which opening is in alignment with the drum opening in main body **14** and is provided with an annular shoulder **32** adjacent its rearward face. Said shoulder **32** is receivable in an annular concentric recess **34** concentric with and communicating with the impact disc opening. By such means, said impact disc will be brought into abutment with said impact plate so as to be tightly retained within the said opening in the impact plate **16** with the forward movement thereof being limited thereby.

The opposite planar faces of impact disc **30** will be flush with the corresponding planar faces of impact plate **16** so as to present a pair of unbroken surfaces

throughout, while the rear planar face of said impact disc will be in kissing relationship with the forward planar face of the aligned drum **22**.

A registration mark **36**, etched or otherwise delineated on the rearward face of drum **22**, will be registrable in seriatim with one of a series of circumferentially-arranged gradient lines or markings **38** provided on the rearward face of main body **14** circumjacent said drum, which gradient lines serve as a scale wherefore the player may accurately position shaft **12** at any desired angle relative to head **10**.

As shown in FIG. 1, the angle of shaft **12** relative to head **10** may be adjusted to any one of the positions indicated by dash lines, or to any position therebetween, which adjustment may be accomplished by resting said head upon the ground or floor and exerting a forward pushing or rearward pulling force upon said shaft, whereby drum **22** is caused to rotate within its respective opening in main body **14** to effect the desired angularization of said shaft.

The length of slot **20** in main body **14** will serve to limit the extent to which shaft **12** may be angularized, although as a practical matter, it has been found that seldom is an adjustment range in excess of 30° required.

Impact disc **30** will function as the so-called "sweet spot" of the head, and will present a firm, positive surface to a golf ball as it strikes the same wherefore the putting skill of the player may be vastly improved.

Head **10** is so designed as to be balanceable perfectly relative to shaft **12**, and the distribution of the weight thereof may be varied by the insertion or removal or repositioning of one or more weights **40**, in the form of lead pellets or the like, into one or more of a plurality of horizontally inwardly-extending annular pockets **42** provided in the forward face of main body portion on both sides of the drum, it being evident that the impact plate will be removed from its enclosing position relative to the main body in order to gain access to said pockets **42**, and accordingly, to vary the weight of the head by loading thereinto the requisite number of weights **40**.

It will be understood, that, as the angle of the shaft relative to the head is changed, it will usually be the desideratum to shift the position of the weights within the head in order to keep the club in perfect balance. Thus, by the use of the weight means, the player is enabled to rebalance the club (if it is so desired) when the shaft is locked in its new position of angularity relative to the head.

It will also be evident that the number or position of the pockets **42** and/or of the weights **40** may be varied without departing from the spirit and scope of the invention.

In order to meet the specifications of current golfing regulations, the shaft of the club must be stabilized before a tournament or match play. Such rule as reads "No part of the club may be movable or separable, or capable of adjustment during a round of play; the player or other agency shall not change the playing characteristics of a club during a round" has been assiduously borne in mind during the development of this invention. Same may be readily accomplished herewith, it being understood that the golfer initially may select the desired shaft angle, and secondarily, may fix the shaft in said position before the match play begins, all so as to satisfy the aforementioned rules of the game.

A combined tensioning and locking assembly, best shown in FIGS. 5 and 8, will comprise a tension plug **50**, a tension spring **52**, an externally and internally threaded annular locking plug **54**, and an externally threaded locking screw **56**.

Tension plug **50** will be provided with an arcuate face **58** suitably formed to conform to the contour of the outer periphery of drum **22**, upon which arcuate face the outer periphery of the drum **22** may ride, as will be seen.

The tensioning and locking assembly will be disposed in

an angularly, upwardly-extending, threaded, cavity **60** provided in main body **14** and opening into the drum opening in which drum **22** is journalled.

Referring to FIGS. 5 and 6, it will be observed that a portion of the bottom or sole surface of main body **14** is provided with a longitudinally-extending recess **70** adjacent cavity **60**, in which recess, a retaining plate **72** will be receivable, which plate **72** will be fixed to said main body as by screws **74** receivable in threaded openings **76** provided in said main body.

Retaining plate **72** serves the functions of shielding the tensioning and locking assembly from dust or other foreign objects, and prevents the accidental loss of the assembly during play.

In addition, the tensioning plate makes it difficult for the player to adjust the club during match play, if the club has previously been locked in position, thus satisfying U.S.G.A. rules against the adjustment of the club during a round of play.

Tension plug **50** and its related parts will be assembled into main body **14** in manner as follows: tension plug **50**, having an arcuate face **58** suitably formed to conform to the contour of the outer periphery of drum **22**, upon which arcuate face the outer periphery of drum **22** may slide, is inserted into cavity **60** so that said arcuate face **58** bears against the outer periphery of drum **22**; tension spring **52** is sleeved upon a tail portion **78** extending rearwardly from and integral with tension plug **50**; locking plug **54** is threaded into cavity **60** until it contacts spring **52**; and locking screw **56** is threaded into a central opening **80** in locking screw **54**.

If it is desired to lock or fix shaft **12** in a certain position, locking screw **56** will be rotated until it contacts tail portion **78** of tension plug **50**, whereupon the arcuate face **58** is caused to bear tightly against the outer periphery of drum **22**, thus precluding the rotation thereof and, consequently, precluding movement of shaft **12**.

When it is desired to allow free movement of shaft **12**, locking screw **56** will be backed away from tail portion **78** of tension plug **50**.

The tension of tension plug **50** upon drum **22** may be varied by the rotation of locking plug **54** so to effectuate an increase or decrease of the tension upon spring **52**.

The heads of both locking plug **54** and locking screw **56** will be suitably slotted or otherwise apertured, as shown, for the rotation thereof as by a screw driver or similar tool.

When a player is experimenting with the club, he will understandably seek a relatively easy movement of the shaft relative to the head, and such may be attained by the backing off of locking screw **56** whereby the force exerted by tension plug **50** against drum **22** will be decreased. Once the desired angular position of the shaft has been determined, the shaft may be fixed in place by an appropriate rotation of the locking screw **56**.

The locking plug **54** will preferably be preset at the factory to exert the proper force upon spring **52** so as to permit the rotation of drum **22**. This setting may, of course, be changed by the player, if he so desires.

In the modified form of the invention shown in FIGS. 10–14, a club head **110** is formed without the impact plate **16** and the impact disc **30**. In this embodiment, the forward planar face of a drum **122** serves as the "sweet spot" of the club, said drum extending completely through the body **114**, with its opposite ends being flush with the forward and rearward planar faces thereof.

The golf club of FIGS. 10–14 is identical in all other respects to that of FIGS. 1–9.

Similar characters of reference have been used to designate corresponding parts throughout the several views. These components having been once described, a repetition of that description at this point is not considered necessary.

The rearward planar face of the club head **110** is identical to that of the preferred form of the invention shown in FIGS. 1–9, wherefore it has not been again illustrated.

From the foregoing, it will be apparent that I have provided a golf club having means for permitting the easy angularization of the shaft relative to the head and also incorporating a novel tensioning and locking means integral therewith, whereby the shaft may be fixed relative to the head so as to satisfy golfing rules, once the golfer has determined the preferred angular position of the shaft as best suits his particular physical features and characteristics insofar as the playing of golf are concerned.

It is believed that the gist of the invention will be clearly understood from the foregoing disclosure and accordingly, further analysis thereof at this point is considered unnecessary. I have, in accordance with the provisions of the patent statutes, described the apparatus which I believe best to represent the embodiment thereof. Such has been to the end that others can, by applying current knowledge, readily adapt it for various applications without omitting features which, from the standpoint of prior art, fairly constitute essential characteristics of its generic and/or specific aspects.

The protection which is sought for this invention is covered by the language of the above specification and the spirit represented thereby.

The claims are desired to include within the scope thereof all of said suitable variations, modifications and equivalents by which substantially the results of the invention may be obtained through the use of substantially the same or equivalent devices or means. Accordingly, limitation hereof should only be made as determined by a proper interpretation of the prior art and the scope of the subjoined claims, in which it is my intention to claim all novelty inherent herein as broadly as possible.

I therefore particularly point out and distinctly claim as my invention:

1. An adjustable putter comprising, in combination, a head and a shaft, said head comprising a main body and an impact plate fixed thereto, a transversely extending opening in said main body having an annular drum journalled therein, an opening in said impact plate aligned with the opening in the main body and carrying an annular disc therein, a compression spring disposed in an angularly upwardly-extending threaded opening in said main body communicating with said transversely-extending opening and carrying a tension plug, said tension plug having a forward face concaved to the outer periphery of the drum and a tail portion sleeved by said spring, a locking plug threaded in said upwardly-extending opening bearing against said spring and a locking screw threaded in said locking plug adaptable to bear against said tail portion, said shaft extending through a longitudinal groove in said main body and being fixed to the drum, and a scale on said main body and a registration mark on said drum, said drum being rotatable relative to said head whereby said shaft may be angularized and whereby the degree of angularization may be indicated by said scale, and said tension plug being movable by rotation of said tension screw to tightly embrace the outer periphery of said drum whereby rotation of said drum and angularization of said shaft are precluded.

2. An adjustable putter comprising in combination, a head, a shaft, a transversely extending opening in said head having an annular drum journalled therein, a compression spring disposed in an angularly upwardly-extending threaded opening in said head communicating with said transversely-extending opening and carrying a tension plug, said tension plug having a forward face concaved to the outer periphery of said drum and a tail portion sleeved by said spring, a locking plug threaded in said upwardly-extending opening bearing against said spring and a locking screw threaded in said locking plug adaptable to bear against said tail portion, said shaft extending through a longitudinal groove in said head and being fixed to said drum, said drum being rotatable relative to

said head whereby said shaft may be angularized, said tension plug being movable by rotation of said tension screw to tightly embrace the outer periphery of said drum whereby rotation of said drum and angularization of said shaft are precluded.

3. An adjustable putter comprising, in combination, a shaft, a head having a transversely-extending opening therethrough, an annular drum journalled in the opening in said head, a compression spring disposed in an angularly upwardly-extending threaded opening in said head communicating with said transversely-extending opening and carrying a tension plug, said tension plug having a forward face concaved to the outer periphery of said drum and a tail portion sleeved by said spring, a locking plug threaded in said upwardly-extending opening bearing against said spring and a locking screw threaded in said locking plug adaptable to bear against said tail portion, said shaft extending through a longitudinal groove in said head and being fixed to said drum and a scale on said main body portion and a registration mark on said drum, said drum being rotatable relative to said head whereby said shaft may be angularized and whereby the degree of angularization may be indicated by said scale, said tension plug being movable by rotation of said tension screw to tightly embrace the outer periphery of said drum whereby rotation of said drum and angularization of said shaft are precluded.

4. In an adjustable putter as set forth in claim 2 including means within said head whereby the weight thereof may be varied.

5. In an adjustable putter as set forth in claim 2 including weighting means repositionable within said head whereby the lateral balance of the putter may be maintained without regard to the angular position of the shaft relative to the head.

6. An adjustable golf club comprising in combination, a head, a shaft, a transversely extending opening in said head having an annular drum journalled therein, adjustable tensioning means disposed in an angularly upwardly-extending threaded opening in said head communicating with said transversely-extending opening, said tensioning means including a tension plug having a forward face concaved to the outer periphery of said drum, and locking means disposed in said angularly upwardly-extending opening adapted to bear against said tension plug, said shaft extending through a longitudinal groove in said head and being fixed to said drum, said drum being rotatable relative to said head whereby said shaft may be angularized, said tension plug being movable by rotation of said locking means to tightly embrace the outer periphery of said drum whereby rotation of said drum and angularization of said shaft are precluded.

7. In an adjustable putter, the combination comprising, a head comprising a main body having a transversely-extending drum opening therein and an impact plate fixed thereto and having an opening therethrough and alignable with the drum opening in the main body, a shaft, a drum rotatably receivable in the drum opening in the main body of said head, an impact disc rotatably receivable in the opening in the impact plate of said head, a compression spring disposed in a threaded angularly-disposed tension recess in the main body of said head communicating with the drum opening thereof, a tension plug supported by said spring and having a concaved forward face conforming to and mating with the outer periphery of said drum, a locking means threadedly receivable in the tension recess in the main body of said head and bearing against said spring, said shaft extending through a longitudinal groove in the main body of said head and being fixed to said drum, and a scale delineated on the main body of said head and a registration mark delineated on said drum, said drum being rotatable relative to said head whereby said shaft may be angularized with the angularization being indicated by said scale, and said tension plug being movable by rotation of said tension screw to tightly embrace the outer periphery of said drum whereby rotation of said drum and angularization of said shaft are precluded.

8. An adjustable putter comprising in combination, a head, a shaft, a transversely-extending opening in said head having an annular drum journalled therein, a compression spring disposed in an upwardly-extending threaded opening in said head communicating with the transversely-extending opening and carrying a tension plug, said tension plug having a forward face conforming to the outer periphery of the drum and a tail portion sleeved by said spring, a locking plug threadedly receivable in the upwardly-extending opening and bearing against said spring, and a locking screw threaded in said locking plug and adaptable to bear against said tail portion, said shaft extending through a longitudinal groove in said head and being fixed to said drum, said drum being rotatable relative to said head whereby said shaft may be angularized, said tension plug being movable by rotation of said tension screw to tightly embrace the outer periphery of said drum whereby rotation of said drum and angularization of said shaft are precluded.

9. An adjustable putter comprising, a shaft, a head having a drum opening therethrough, an annular drum journalled in the opening in said head, a compression spring disposed in a threaded spring opening in said head communicating with the drum opening, a tension plug carried by said spring and having a forward face conforming to the outer periphery of said drum, a locking plug threadedly engaged in the spring opening and bearing against said spring, a locking screw threaded in said locking plug, said shaft extending through a longitudinal groove in said head and being fixed to said drum, a scale on said head and a registration mark on said drum, said drum being rotatable relative to said head whereby said shaft may be angularized according to the rotation of said scale relative to said registration mark, said tension plug being movable by rotation of said tension screw to tightly embrace the outer periphery of said drum whereby rotation of said drum and angularization of said shaft are precluded.

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