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(54) **TENNIS RACQUET HANDLES**

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(57) **ABSTRACT**

Handle constructions for racquets having opposing, flat ball-striking playing faces wherein the handles are of varying circular outlines in which one of the handles is symmetrically rounded throughout the entire length of the handle. Another

handle has two small flat surfaces (bevels) within the circular outline which are parallel to the playing faces and another handle has four small flat surfaces (bevels) within the circular outline where one pair is parallel and one pair is perpendicular to the playing faces.

These handle constructions are designed to reduce tension and responsibility away from the gripping hand by promoting most, if not all, extra sensory perception in the non-racquet hand or lead hand of the player. The gripping hand is reduced to executing the swing of a Tennis stroke and the non-racquet hand or lead hand is in control of knowing or “feeling” the disposition of the playing faces during the preparation stage of a Tennis stroke.

These handle constructions encourage a player’s non-racquet hand or lead hand to have all “sensed intelligence” of the racquet and relieves the stress of the gripping hand’s responsibility, which should only be to execute the swing of a Tennis stroke.

There are three versions of the end cap of the handles of varying circular outlines. One version is like the traditional end cap of a tennis handle, meaning, it is of larger dimension of the handle and tapers down to fit the dimension of the handle. Another version of the end cap is similar to the handle end of a baseball bat which has a ring shape of larger dimension of the handle with the width of the ring about ½ of an inch of the end of the handle. Another version of the end cap has a ring shape with a gradual nonlinear bridge section that tapers to fit the dimension of the handle.

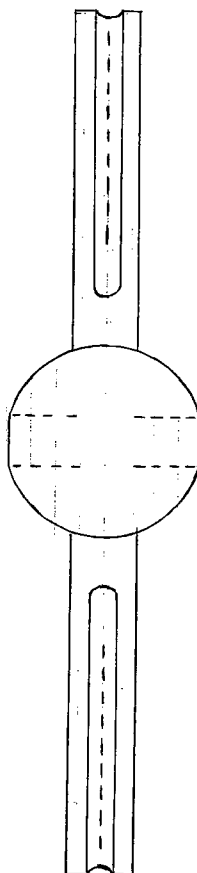


Fig 1

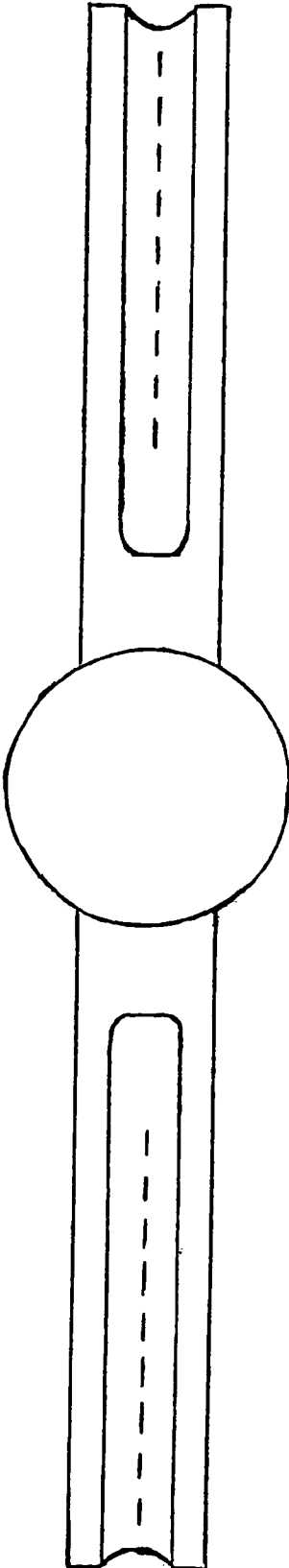


Fig 2

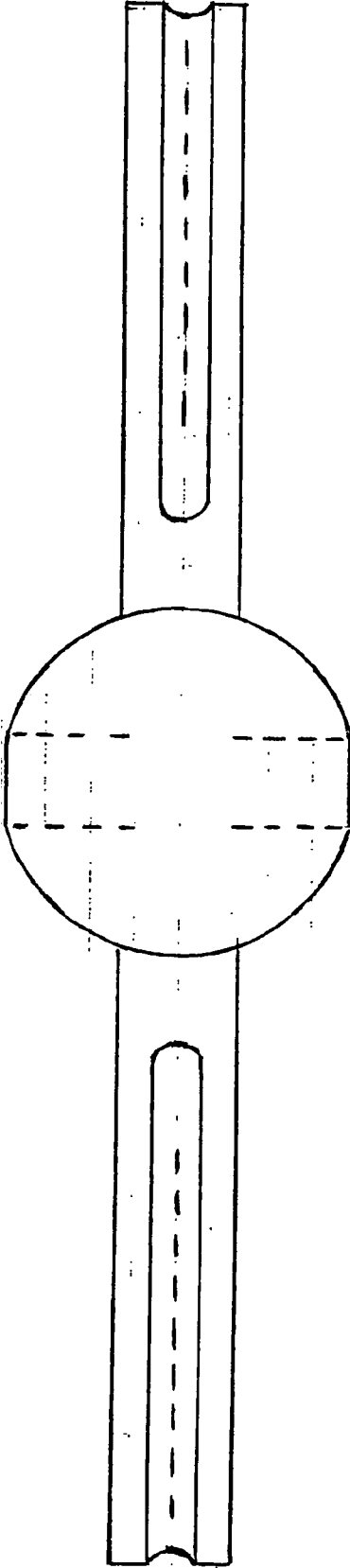
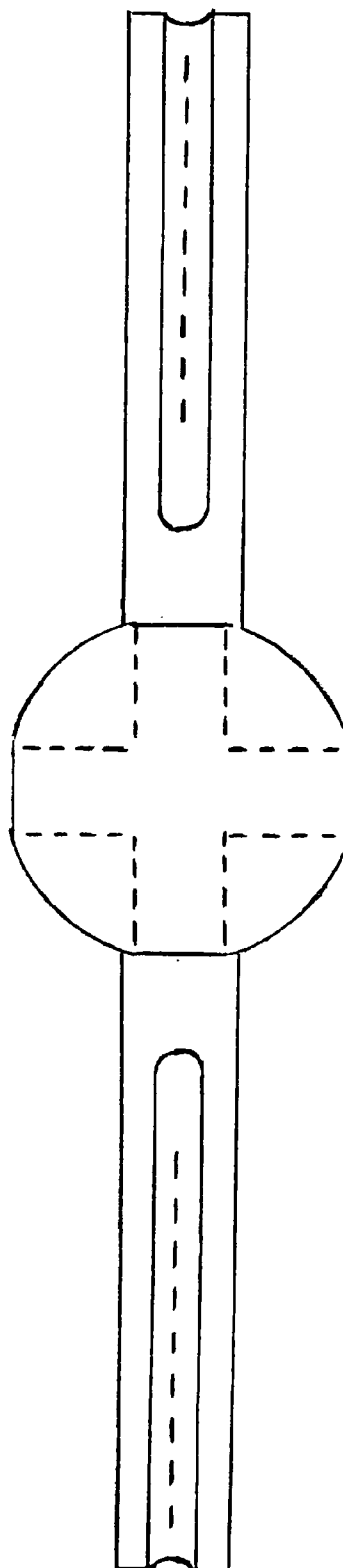


Fig 3



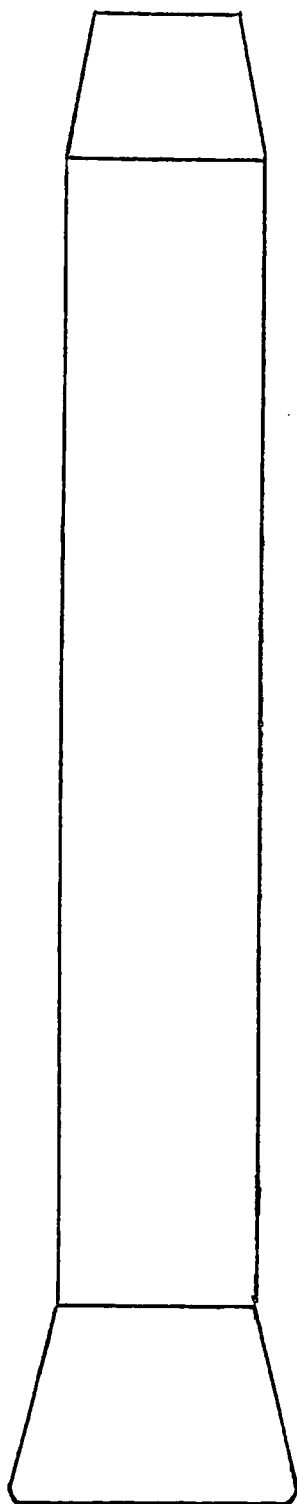


Fig 4

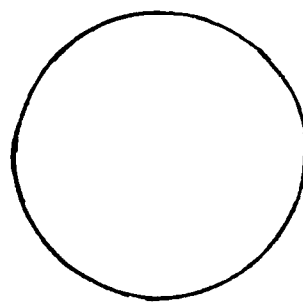


Fig 5

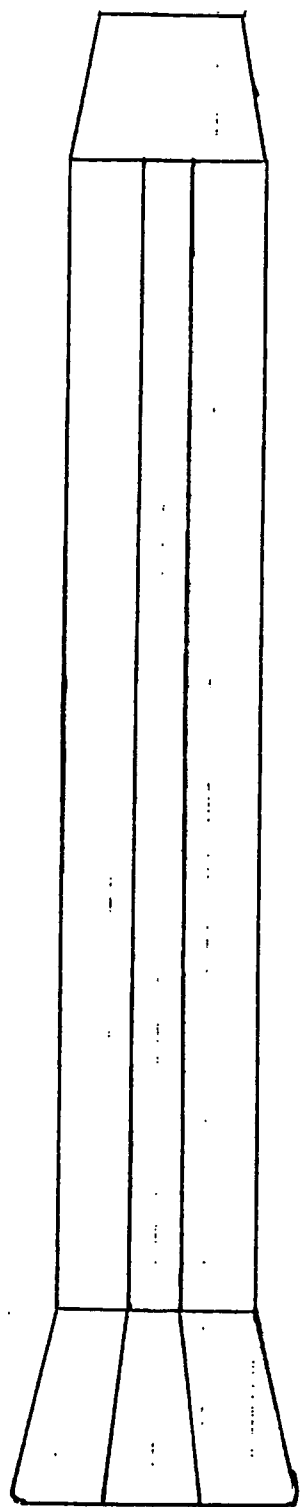


Fig 6

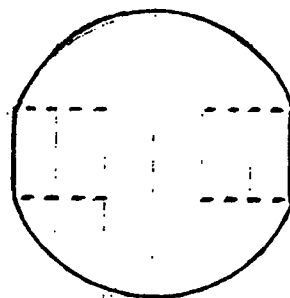


Fig 7

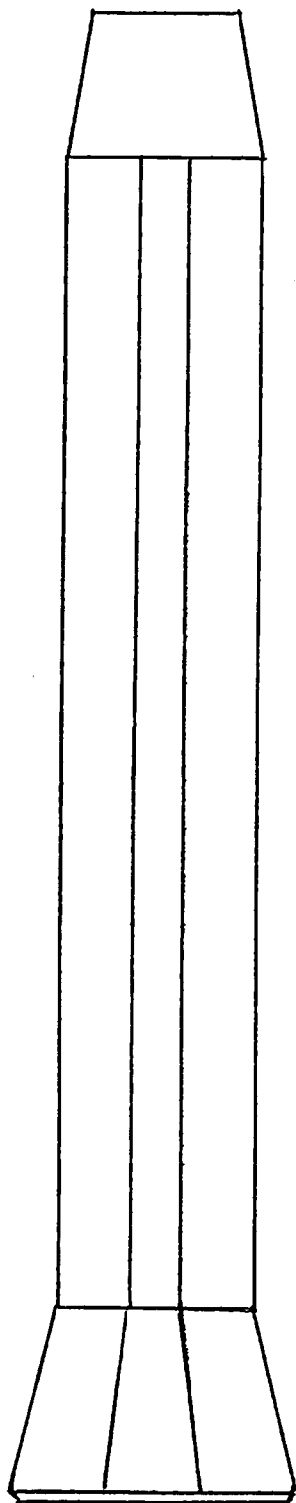


Fig 8

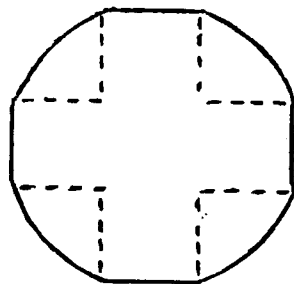


Fig 9

Fig 10

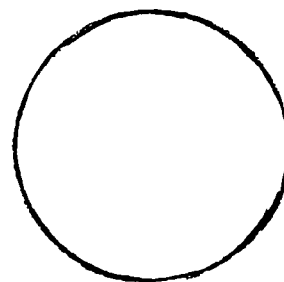
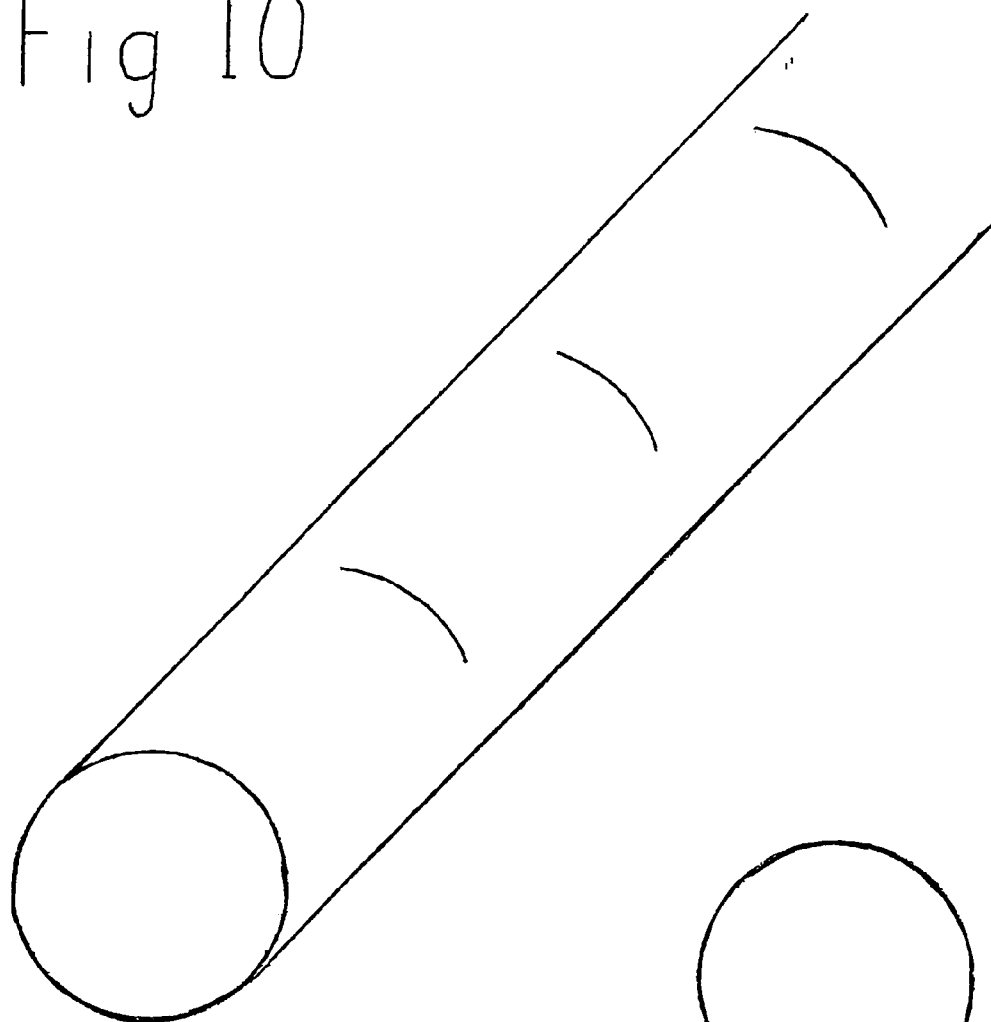


Fig 11

Fig 12

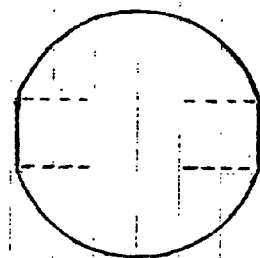
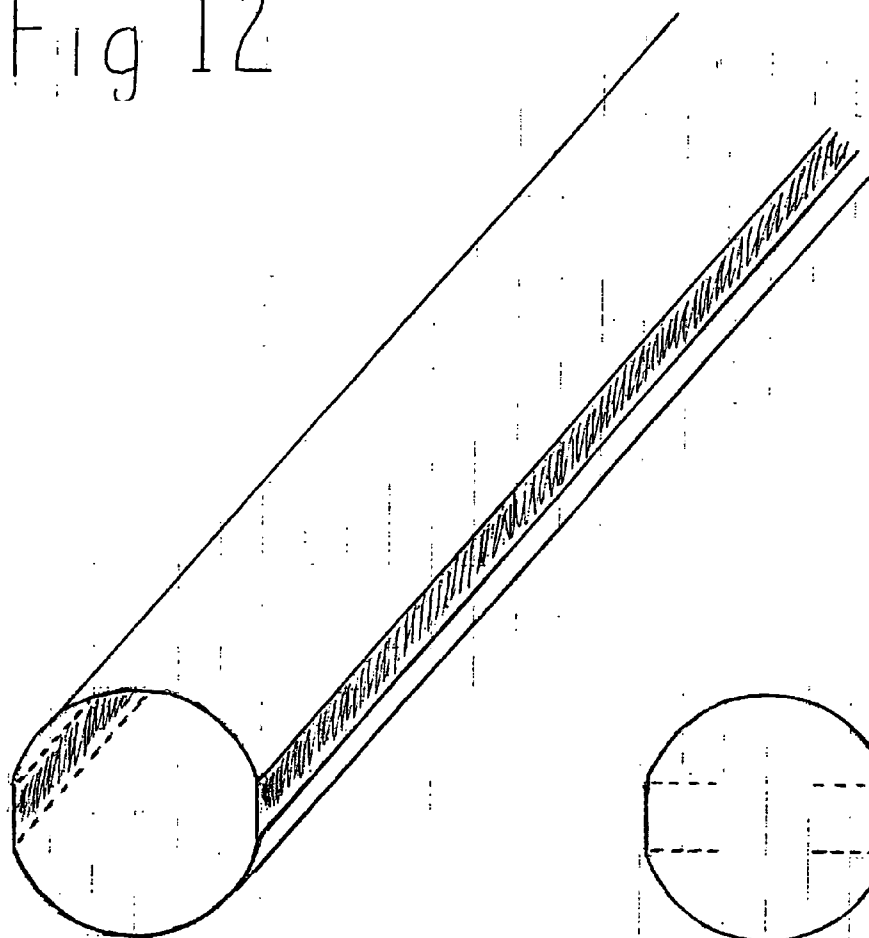


Fig 13

Fig 14

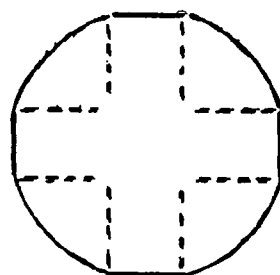
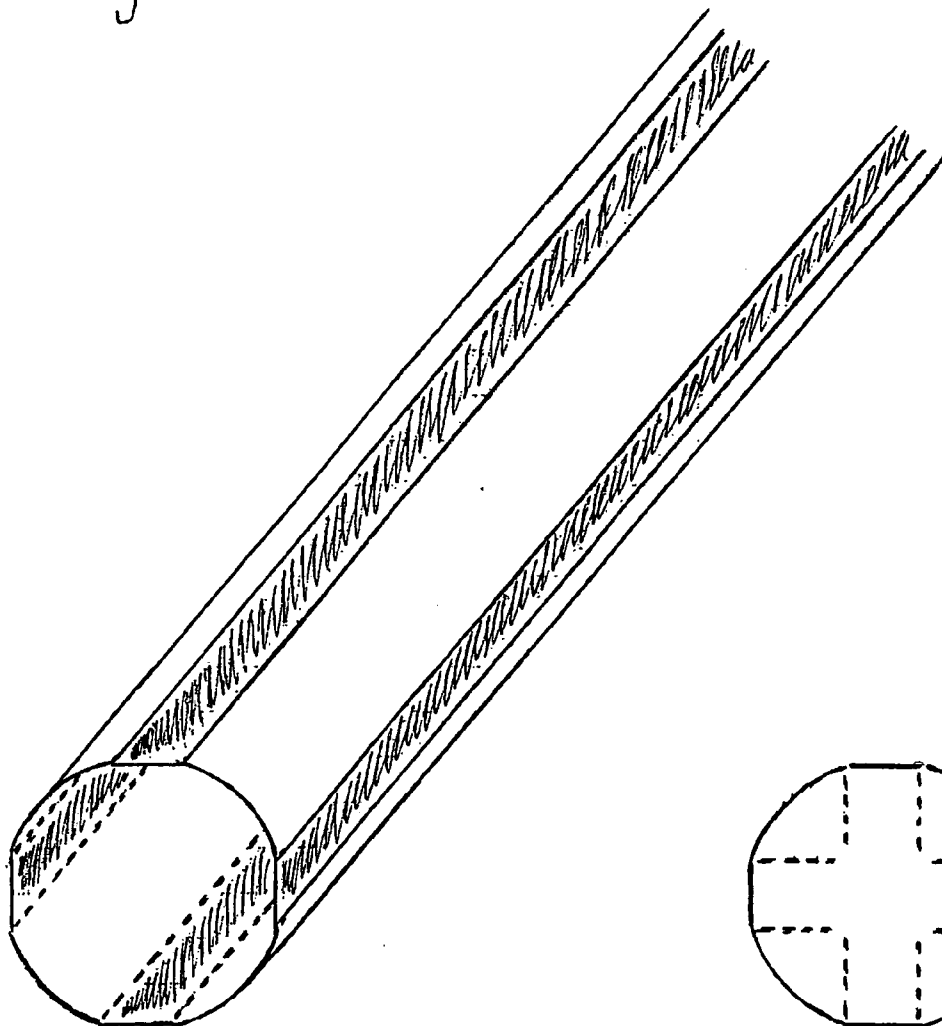


Fig 15

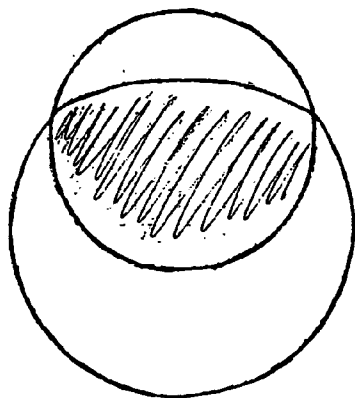


Fig 16

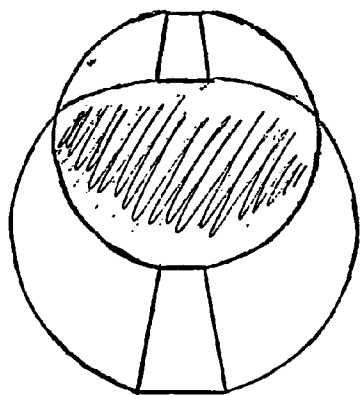


Fig 17

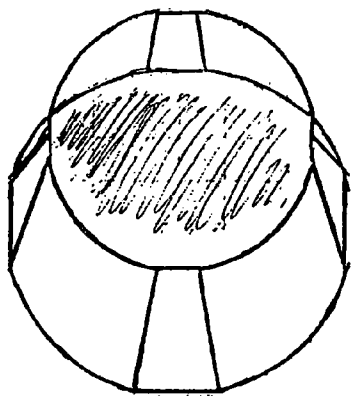


Fig 18

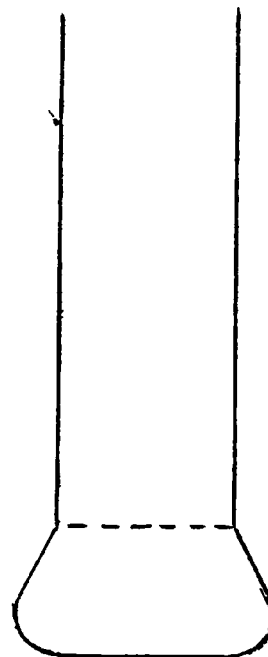


Fig 19

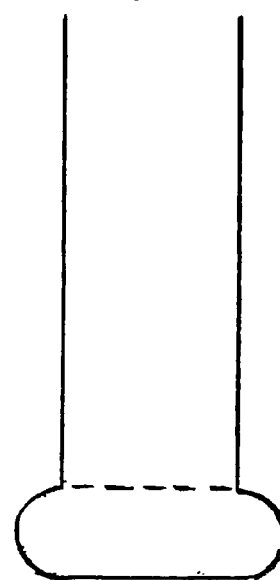


Fig 20

TENNIS RACQUET HANDLES

FIELD OF INVENTION

[0001] This invention relates to racquets such as tennis racquets and the like and more particularly to the handles of such racquets.

[0002] Still more importantly this invention is related to the construction and cross-sectional outline configuration of handles of circular character, one handle symmetrically rounded to the plane of the ball-striking surfaces of the head of the racquet. Another handle of circular character with two small flat surfaces (bevels) parallel to the plane of the ball-striking surfaces of the head of the racquet and another handle of circular character with four small flat surfaces (bevels), one pair is parallel and one pair is perpendicular to the plane of the ball-striking surfaces of the head of the racquet.

[0003] This invention is constructed of a composite surface with a circular outline handle, one symmetrically rounded, where extra sensory perception provisions impressible involuntarily into the mind of the player imparted through the factors sensed by the non-racquet hand or lead hand on the throat of the racquet. The circular outline symmetrically rounded gives the gripping hand no information of the playing faces, meaning, racquet face angles or grips used to execute a tennis stroke. The non-racquet hand or lead hand placed on the throat of the racquet is used to ascertain all information of the angles of playing faces used to perform tennis strokes. The circular outline handle with two small flat surfaces (bevels) parallel to the playing face and the circular outline handle with four small flat surfaces (bevels), one pair is parallel and one pair is perpendicular to the playing faces gives the gripping hand some information, but these two handles are designed for the non-racquet hand or lead hand (placed on the throat or handle of the racquet) to ascertain all information regarding the disposition of the playing faces of the tennis racquet used to perform tennis strokes.

OBJECTS OF INVENTION

[0004] The principal object of the invention is to provide handles of circular outline to reduce tension in a player's gripping hand by placing most, if not all, "sensed intelligence" in the non-racquet hand or lead hand of the player.

[0005] Another object of the invention is to provide handles of circular outline to improve the users playing ability through the process of using the non-racquet hand or lead hand to change the angle of the racquet face or change grips quicker and easier without tension or restraint in the gripping hand.

[0006] Another object is to provide handles of varying circular outline to accommodate all styles of players. The player who uses a one-handed backhand could use all three versions of the circular outline handles because the non-racquet hand or lead hand is usually positioned on the throat of the racquet, but the circular outline handle symmetrically rounded is designed for the one-handed backhand player. The player who uses a two-handed backhand would have better results using the two circular outlines which have small (bevels), one handle has two and one handle has four. The two-handed backhand player's non-racquet hand or lead hand is usually positioned on the handle with the gripping hand and the two bevel and four bevel circular outline handles give the non-

racquet hand or lead hand the sensory perception of the disposition of the playing faces of the tennis racquet used to perform tennis strokes.

[0007] Another object is to provide a tennis racquet handle of circular outline where the user can play a wider variety of racquet face angles (or wider variety of grips) to execute a wider variety of tennis shots instead of using "one grip" or "one angle of the racquet face" to hit all forehand shots and backhand shots.

[0008] Another object of the circular outline handles is to teach players the importance of the non-racquet hand or lead hand. There are four important functions of the non-racquet hand or lead hand that are vital to perform tennis strokes at the highest level of play. They are: (1) the NRH or LH changes the angle of the racquet face (changes grips) while the gripping hand is relaxed; (2) the NRH or LH supports the weight of the racquet in between shots so the gripping hand can relax between shots; (3) the NRH or LH controlling the racquet in between shots keeps the racquet head up above the hands which is important when playing at net; and (4) the NRH or LH is used as a guide hand—to prepare the racquet before executing shots, to know where the racquet is in relation to the body and to know what racquet face angle or grip is being used to execute a tennis stroke.

[0009] Another object of the circular outline handles is that the player learns the importance of the angles of the racquet face instead of learning the "Grips of Tennis". For example, there are four different grips used to hit various types of forehand shots: Continental Grip, Eastern Forehand Grip, Semi-Western Forehand Grip and Western Forehand Grip. Each grip has a different degree of angle; for a right-handed player, the Continental grip has an angle of 45 degrees (racquet face is open), the Eastern Forehand grip has an angle of 0 degree (racquet face is square), the Semi-Western Forehand grip has an angle of 315 degrees (racquet face is closed) and the Western Forehand grip has an angle of 270 degrees (racquet face is parallel to the ground—very closed). From one grip to the next, there is an angle difference of 45 degrees. The circular outline handles will provide the player an ability to set the racquet face to various angles in between, as well as, the angles in relation to the four grips mentioned above. For example, on a particular forehand shot, the player may need to use a racquet angle of 290 degrees to effectively execute that particular forehand shot. This angle of 290 degrees is in between the Semi-Western and Western grips. The circular outline handles allow the player to use a greater range of racquet face angles using the non-racquet hand or lead hand to set the desired angle while the gripping hand is relaxed in between shots. Also, with fewer bevels on two of the handles and one handle without bevels, the gripping hand's feel of the handle is less restricted to use a more complete multiple of angles of the racquet face.

[0010] Another object of the circular outline handles is to keep the importance of racquet performance and racquet adjustment in the non-racquet hand or lead hand instead of the gripping hand doing all the work of the racquet. The overuse of the gripping hand controlling the functionality of the racquet keeps the gripping hand in a state of tension, which create many problems for players such as slower reaction and movement to the ball, hitting all forehands and backhands with "one grip" or "one angle of the racquet face", causing early fatigue or injury (tennis elbow) and inconsistent shots. The circular outline handles were designed to give players the

ability to correct these problems by using the non-racquet hand or lead hand to control all functionality of the racquet.

PRIOR ART

[0011] Most tennis racquets have had, and still have handles of octagonal cross-section. The composite surfaces of the handle are substantially of equal perimetrical width except the two opposing surfaces in the plane of the head of the racquet, which are slightly wider.

[0012] The eight bevels of the octagonal handle provide all “sensed intelligence” of the racquet in the gripping hand alone. Which means, the gripping hands’ feel of the octagonal handle, has an understanding to the disposition of the playing faces throughout an entire swing of the racquet without prior or instant observation or other prior orientative discernment.

[0013] A handle construction of tennis racquet character having extra sensory perception incorporated in the handles’ perimeter surfaces as to their composite differences in size, shape and intensification of the corners or other elements comprising its cross-sectional outline including its girth and diametrical dimensional differences among the opposing pairs of surfaces.

[0014] At the time of the creations of the various types of octagonal handles for tennis racquets, the game of Tennis was played with touch, finesse, control and placement of shots through the use of wooden tennis racquets. The weight of the wooden racquets varied between 14.5 ounces up to 16.5 ounces. The speed of the ball hit with these wooden racquets was slow enough where the game could be played with the gripping hand controlling all functionality of the racquet.

[0015] Beginning in the late 1970’s other materials were developed to substitute for wooden racquets. Lighter and stronger materials such as aluminum, graphite, Kevlar, etc. were used in tennis racquets. With the new lighter and stronger racquets, 9 ounces to 12 ounces, the game of Tennis became a game of power hitting.

[0016] In the present, the game of Tennis is played with so much power hitting that a player could not possibly play well with the use of the gripping hand alone controlling all functionality of the racquet.

[0017] The non-racquet hand or lead hand has to take on a fuller implementation in a players’ game. The octagonal handle, with the sensed intelligence received from the bevels, cause too much restraint in a players’ gripping hand to allow full use of the non-racquet hand’s or lead hand’s responsibilities which are rarely, if ever, learned by using the octagonal handle due to constant tension in the gripping hand.

[0018] Even through years of playing Tennis and years of taking lessons, the octagonal handle’s feel encourages a player’s gripping hand to dominate the actions of the racquet and the functionality of the non-racquet hand or lead hand is never fully developed.

[0019] At present, the speed of the game of Tennis, with the use of the octagonal handle tennis racquet promotes more tension in the gripping hand which promotes slower reaction to the ball, early fatigue or injury (tennis elbow), the timing of the swing gets later, failing to properly adjust the racquet face (properly change grips) to the different on-coming balls, players tend to use “one grip” or “one angle of the racquet face” to hit all forehand and backhand shots. This leads to inconsistency and frustration and lack of confidence in a player’s ability.

SUMMARY OF INVENTION

[0020] This invention relates to tennis racquets, in particular, to handles of tennis racquets. These handles have varying circular outlines where one handle is symmetrically rounded throughout the entire length of the handle, one handle is of circular outline with two small flat surfaces (bevels) parallel to the playing faces of the head of the racquet and one handle is of circular outline with four small flat surfaces (bevels), where one pair is parallel and one pair is perpendicular to the playing faces of the head of the racquet.

[0021] This invention takes away most or all reference points of the handle regarding Tennis grips, or more importantly, the angles of the racquet face from the feel of the gripping hand of the player. The circular outline handle rounded symmetrically, designed for one-handed backhand players, gives no information to the gripping hand; all information is sensed through the non-racquet hand or lead hand placed on the throat of the racquet. The other two circular outline handles, one handle with two small bevels and one handle with four small bevels, designed for two-handed backhand players, gives some reference points to both the gripping hand and non-racquet hand or lead hand in which both hands are placed on the handle. However, the non-racquet hand or lead hand takes control of sensing all information relating to the disposition of the racquet face.

[0022] This invention requires all players (except wheelchair players or other players who are unable to use both hands to play Tennis wherein these players will have to use the octagonal handle tennis racquet) to develop the use of the non-racquet hand or lead hand to understand all “sensed intelligence” of the functionality of the racquet, meaning the NRH or LH sets the angle of the racquet face or sets the grip in order to execute various tennis strokes in various tennis point situations.

[0023] The gripping hand is free to execute a tennis stroke with more confidence after the non-racquet hand or lead hand, sets the desired angle of the racquet face or desired grip change.

[0024] The circular outline of the handles fits the shape of both the gripping hand and non-racquet hand or lead hand more comfortably for better feel.

[0025] This invention puts the extra sensory perception provisions impressible involuntarily into the mind of the player imparted through the intensification factors sensed by the non-racquet hand or lead hand gripping the handle or throat of the racquet. This allows the NRH or LH to have the dominant role of the racquet in which the NRH or LH is in control of changing the racquet face angles or changing grips, it allows the gripping hand to relax in between shots, it keeps the racquet head up (in the ready position), it is used as a guide hand for the racquet.

[0026] These handles of circular character will provide players a better understanding of the game of Tennis, meaning, the best use of the hands and racquet when playing all the different types of on-coming balls hit by the opponent(s); (1) the non-racquet hand or lead hand takes the dominant role of the racquet which allows players to play with less tension in the gripping hand, (2) the use of the NRH or LH allows players to change grips or change the angle of the racquet face quicker and easier and also allowing to play with more variety—using more angles of the racquet face or using more than “one grip” to hit forehands and backhands, (3) the NRH or LH allows the gripping hand to relax in between shots so players can eliminate the “death grip” or long intensity grip on the

handle, (4) reducing tension in the gripping hand prevents early fatigue and injury (tennis elbow), (5) players learn how to correct mistakes by using the NRH or LH to better adjust the angle of the racquet face in any and all situations on court, and (6) players will play more relaxed and build confidence in their ability to have a fuller command of the racquet.

BRIEF DESCRIPTIONS OF DRAWINGS

[0027] FIG. 1 is a bottom view of a tennis racquet with a handle of circular outline symmetrically rounded.

[0028] FIG. 2 is a bottom view of a tennis racquet with a handle of circular outline with two small flat surfaces (bevels) parallel to the playing faces of the head of the racquet.

[0029] FIG. 3 is a bottom view of a tennis racquet with a handle of circular outline with four small flat surfaces (bevels), one pair is parallel to the playing faces of the head of the racquet and one pair is perpendicular to the playing faces of the head of the racquet.

[0030] FIG. 4 is a side view of a handle of circular outline symmetrically rounded throughout the entire length of the handle.

[0031] FIG. 5 shows the bottom view of a handle of circular outline symmetrically rounded.

[0032] FIG. 6 is a side view of a handle of circular outline with two small flat surfaces (bevels) parallel to the playing faces of the head of the racquet.

[0033] FIG. 7 shows the bottom view of a handle of circular outline with two small flat surfaces (bevels) parallel to the playing faces of the head of the racquet.

[0034] FIG. 8 is a side view of a handle of circular outline with four small flat surfaces (bevels), one pair is parallel to the playing faces of the head of the racquet and one pair is perpendicular to the playing faces of the head of the racquet.

[0035] FIG. 9 shows the bottom view of a handle of circular outline with four small flat surfaces (bevels), one pair is parallel to the playing faces of the head of the racquet and one pair is perpendicular to the playing faces of the head of the racquet.

[0036] FIG. 10 is a perspective view of the mid-section of a handle of circular outline symmetrically rounded throughout the entire length of the handle.

[0037] FIG. 11 shows the bottom view of a handle of circular outline symmetrically rounded.

[0038] FIG. 12 is a perspective view of the mid-section of a handle of circular outline with two small flat surfaces (bevels) parallel to the playing faces of the head of the racquet.

[0039] FIG. 13 shows the bottom view of a handle of circular outline with two small flat surfaces (bevels) parallel to the playing faces of the head of the racquet.

[0040] FIG. 14 is a perspective view of the mid-section of a handle of circular outline with four small flat surfaces (bevels), one pair is parallel to the playing faces of the head of the racquet and one pair is perpendicular to the playing faces of the head of the racquet.

[0041] FIG. 15 shows the bottom view of a handle of circular outline with four small flat surfaces (bevels), one pair is parallel to the playing faces of the head of the racquet and one pair is perpendicular to the playing faces of the head of the racquet.

[0042] FIG. 16 is a perspective view of an end cap or bottom cap for a handle of circular outline symmetrically rounded.

[0043] FIG. 17 is a perspective view of an end cap or bottom cap for a handle of circular outline with two small flat surfaces (bevels) parallel to the playing faces of the head of the racquet.

[0044] FIG. 18 is a perspective view of an end cap or bottom cap for a handle of circular outline with four small flat surfaces (bevels), one pair is parallel to the playing faces of the head of the racquet and one pair is perpendicular to the playing faces of the head of the racquet.

[0045] FIG. 19 is a side view of the modified end cap or base cap for a handle of circular outline symmetrically rounded. The bottom is a ring shape that has a gradual non-linear bridge section that tapers down to the handle.

[0046] FIG. 20 is a side view of the modified end cap or bottom cap for a handle of circular outline symmetrically rounded. The bottom is a ring shape about a 1/2 inch in width and about a 1/2 inch in length.

DETAILED DESCRIPTION OF DRAWINGS

[0047] Referring to FIGS. 1, 4, 5, 10 and 11: all show perspective views of the handle of circular outline symmetrically rounded throughout the entire length of the handle.

[0048] The construction of the handle is created using rubber compounds, polyurethane, plastic or other materials and can be mounted or molded to fit the shank portion of a tennis racquet frame.

[0049] This handle design, symmetrically rounded, is designed and best suited for one-handed backhand players where the non-racquet hand or lead hand is used by placing on the throat of the racquet.

[0050] All information of the racquet is ascertained through the feel and use of the NRH or LH on the throat of the racquet. The circular outline symmetrically rounded gives no information to the gripping hand. This keeps the gripping hand relaxed and less retentive to restraint when changing the angle of the racquet face or changing grips using the NRH or LH to turn the handle in the gripping hand. Also, the symmetrically rounded handle design makes all grip changes or racquet face angle changes feel the same to the gripping hand.

[0051] This handle design can be used by the two-handed backhand player as long as the NRH or LH starts on the throat (to set up the desired grip change or racquet face angle change) then slides down to the handle along with the gripping hand.

[0052] Referring to FIGS. 2, 6, 7, 12 and 13: all show perspective views of the handle of circular outline with two small flat surfaces (bevels), which are about a 1/2 inch in width, and are parallel to the playing faces of the head of the racquet.

[0053] The construction of the handle is created using rubber compounds, polyurethane, plastic or other materials and can be mounted or molded to fit the shank portion of a tennis racquet frame.

[0054] This handle design with two small bevels can be used by both the one-handed backhand player where the non-racquet hand or lead hand is used by placing on the throat of the racquet and the two-handed backhand player where the non-racquet hand or lead hand is used by placing on the handle of the racquet. All information of the racquet is ascertained through the feel and use of the NRH or LH.

[0055] The two small bevels give some reference to the gripping hand, but it does not overwhelm the gripping hand to

tighten up and take over control. The non-racquet hand or lead hand is the steering mechanism for changing the racquet face angle or changing grips.

[0056] Referring to FIGS. 3, 8, 9, 14 and 15: all show perspective views of the handle of circular outline with four small flat surfaces (bevels), which are about a 1/2 inch in width, where one pair is parallel to the playing faces of the head of the racquet and one pair is perpendicular to the playing faces of the head of the racquet.

[0057] The construction of the handle is created using rubber compounds, polyurethane, plastic or other materials and can be mounted or molded to fit the shank portion of a tennis racquet frame.

[0058] This handle design with four small bevels is best suited for the two-handed backhand player where the non-racquet hand or lead hand is placed on the handle with the gripping hand.

[0059] This handle design with four small bevels gives a little more information to the gripping hand than the circular outline handle with two small bevels but, still, not enough to overwhelm and to cause too much tension to tighten up and take control of the racquet. The four small bevels are used as reference points for the non-racquet hand or lead hand to control the racquet and act as the steering mechanism to adjust and change grips or change racquet face angles.

[0060] This handle design with four small bevels can also be used by the one-handed backhand player with the NRH or LH placed on the throat of the racquet. The four bevels will give some reference to the gripping hand but, the gripping hand is able to be in a more relaxed state compared to the traditional octagonal handle tennis racquet.

Having described my invention of tennis racquets or the handles of tennis racquets, I claim:

1) In a tennis racquet of the character described having a playing face adapted for ball-striking, a longitudinal circular outline handle symmetric in shape wherein one circular outline handle is symmetrically rounded. Another circular outline handle symmetric in shape having two small flat surfaces (bevels) parallel to the playing faces of the racquet. Another circular outline handle symmetric in shape having four small flat surfaces (bevels) in which one pair is parallel and one pair is perpendicular to the playing faces of the racquet.

2) A tennis racquet according to claim 1 wherein all circular outline handles described reduce tension in a player's gripping hand by placing most, if not all, "sensed intelligence" in the non-racquet hand or lead hand of the player.

3) A tennis racquet according to claim 1 to improve the user's playing ability through the process of using the non-

racquet hand or lead hand to change the angle of the racquet face or change grips quicker and easier without tension or restraint in the gripping hand.

4) A tennis racquet according to claim 1 wherein to provide handles of varying circular outline to accommodate both one-handed and two-handed backhand players. The circular outline handle symmetrically rounded is best suited for the one-handed backhand player but this player could also use the other two circular outline handles. The circular outline handles symmetric in shape having bevels, one handle with two bevels and one handle with four bevels, are best suited for the two-handed backhand player.

5) A tennis racquet according to claim 1 wherein the user can play a wider variety of racquet face angles or wider variety of grips to execute a wider variety of tennis shots through the use of the non-racquet hand or lead hand adjusting the racquet with a relaxed gripping hand.

6) A tennis racquet according to claim 1 wherein to teach players the four important functions of the non-racquet hand or lead hand. They are (1) NRH or LH changes the angle of the racquet face or changes grips while the gripping hand is relaxed, (2) NRH or LH supports the weight of the racquet in between shots so the gripping hand can relax, (3) NRH or LH keeps the racquet head up in between shots which is crucial when playing at net and (4) NRH or LH is used as a guide hand—to prepare the racquet before executing shots, to know where the racquet is in relation to the body and to know what racquet face angle or grip is being used to execute a tennis stroke.

7) A tennis racquet according to claim 1 wherein the player learns the importance of the angles of the racquet face, instead of learning the "Grips of Tennis". From one "Tennis Grip" to the next, there is an angle change of 45 degrees. The circular outline handles will provide players the ability to set the racquet face to various angles in between, as well as, the angles in relation to the "Grips of Tennis".

8) A tennis racquet according to claim 1 wherein the circular outline handles keep the importance of racquet performance and racquet adjustment in the non-racquet hand or lead hand, instead of the gripping hand.

9) A tennis racquet according to claim 1 wherein the circular outline handles have end caps in relation to each of the three different handles dimensions: a circular outline handle symmetrically rounded, a circular outline handle with two bevels parallel to the playing faces and a circular outline handle with four bevels where one pair is parallel and one pair is perpendicular to the playing faces. There are two modified end caps for the symmetrically rounded circular outline as well.

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