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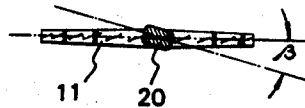
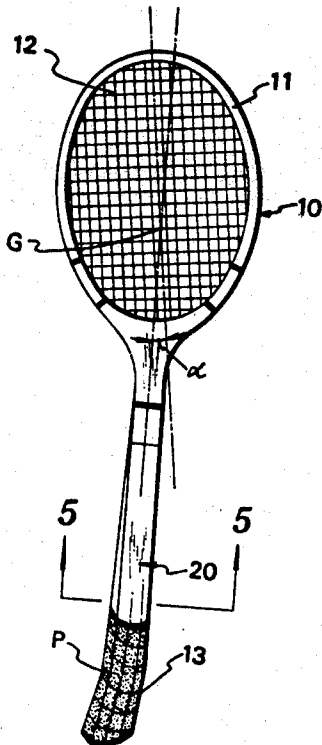
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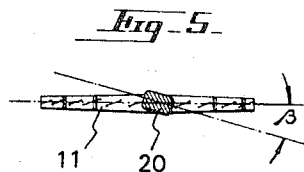
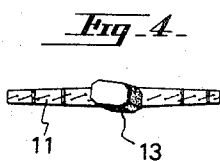
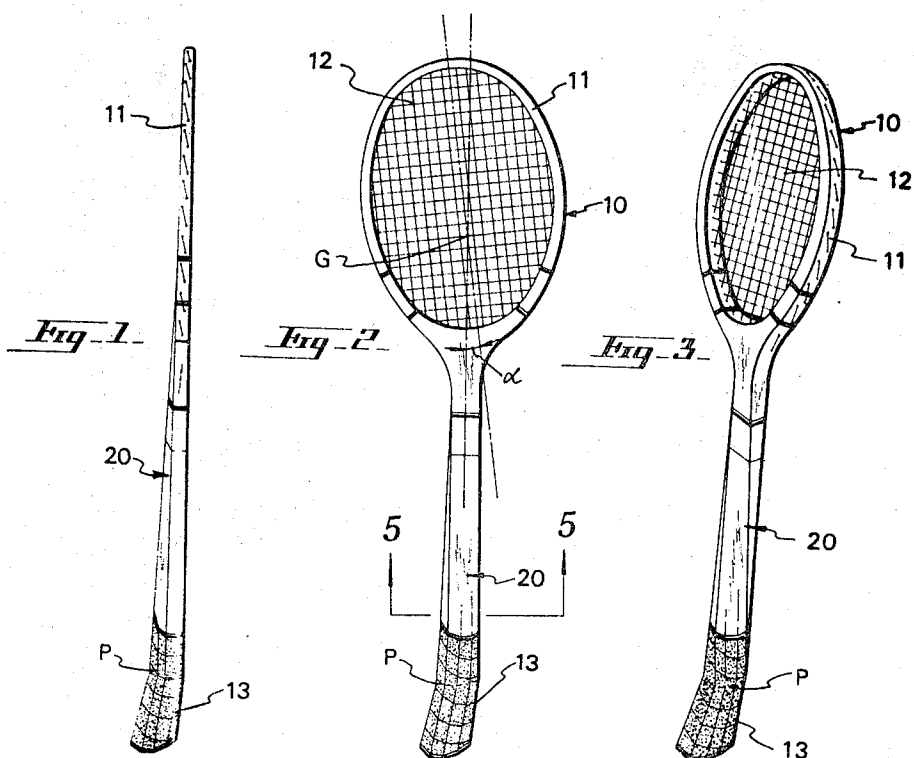
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[54] **RACKET WITH AN INCLINED FRAME AND TWISTED HANDLE**
3 Claims, 5 Drawing Figs.

[52] **U.S. Cl.**..... **273/73,**
 273/76, Des.34/5
 [51] **Int. Cl.**..... **A63b 49/08**
 [50] **Field of Search**..... **273/67(all), 73,**
 73(9), 75, 76, 96(all); 34/5(9.2), (9.5)

ABSTRACT: An improved racket for tennis, badminton, ping-pong and the like, wherein the major axis of the oval frame is inclined relative to the longitudinal axis of the handle. Furthermore the handle has a cross section having a major axis wherein this major axis is at an angle to the plane of the frame. The lower part of the handle is the grip portion and is inclined relative to the longitudinal axis of the handle.





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RACKET WITH AN INCLINED FRAME AND TWISTED HANDLE

The present invention relates to a racket for tennis, badminton, tennis-grip-type pingpong or the like.

In tennis, badminton, pingpong or the like, the positions of the eyes of a player for aiming at the ball are much displaced from his one hand gripping the racket for hitting the ball. Therefore, the degree of difficulty for hitting or returning the ball or the like is not uniform in the playing range of a player. That is, in case of the forehand drive, it is more difficult to return or hit the ball coming inwardly of the player than that coming outwardly. In case of the backhand drive, it is generally difficult to hit the outward ball or to smash the high ball. In other words, a player finds it difficult to hit the ball coming into a specific zone around him. That is, the player is limited in his action only to some zones around him in which he can relatively readily hit or return the ball. Therefore, the receiver must change his position where he can easily return the ball while the server plays so as to hit the ball to the weak points of the receiver, that is the zones in which the receiver finds it difficult to return the ball.

So far it had been considered a matter of course in view of the play independently of the racket construction that each player has such difficult and easy hitting zones as described hereinabove. This means that the conventional rackets are not suited for the all-round play because the striking zones are limited in both of the forehand and backhand drives. But the prior rackets have not been improved at all so that a player can more easily hit back the ball. The construction of the racket has remained unchanged for a long time from the origin of tennis or the like.

In view of the consideration, one of the objects of the present invention is to provide an all-round racket for tennis, badminton, tennis-grip-type pingpong or the like which can eliminate the weak points of a player in returning the ball or the like when the conventional racket is used as described above, thereby increasing the playing range in which he can easily hit or return the ball or the like.

Another object of the present invention is to provide an improved racket which can be gripped by a player in more natural and stabilized manner.

A further object of the present invention is to provide an improved racket for tennis, badminton, pingpong or the like which is best suited for the singlehanded striking action of a player so that the ball or the like may be correctly hit back by the gut surface.

A still another object of the present invention is to provide an improved racket for tennis, badminton, pingpong or the like by which a player can hit or return the ball or the like without any change of his grip in all actions.

The above and other objects, features and advantages of the present invention will become more apparent from the following description of an illustrative embodiment thereof taken in conjunction with the accompanying drawings.

FIG. 1 is a side elevational view of a racket according to the present invention;

FIG. 2 is a front elevational view thereof;

FIG. 3 is a perspective view thereof;

FIG. 4 is an end view thereof; and

FIG. 5 is a sectional view taken along the line 5-5 of FIG. 2.

The description of one preferred embodiment of the present invention will be given with reference to the drawing illustrating a racket for a right-handed player according to the present invention, but it will be understood that a racket for a left-handed player may be provided in the similar manner.

A racket of the present invention is comprising a hitting section 10 consisting of a generally oval frame 11 and a gut 12 and a handle 20 having a grip 13. As best shown in FIG. 2, the major axis of the frame 11 is inclined toward the left in the FIG. through an angle relative to the longitudinal axis of the handle 20 and the extension of the axis of the handle 20 intersects with the major axis at the center of gravity of the striking section 10.

As best shown in FIG. 5, the handle 20 is twisted in the clockwise direction through an angle of β . Generally, the handle must be twisted above the grip 13. Normally, the handle 20 is twisted at the upper end thereof, that is the joint between the handle 20 and the frame 11 or the intermediate of the handle 20. The angles α and β may be selected as will be described hereinafter, but they are relatively small angles.

The lower portion of the grip 13 is bent forwardly and to the left and the portion indicated by P is adapted to be gripped within the palm.

Opposed to the conventional racket, the racket of the present invention is a symmetrical vertically and horizontally and with respect to the front and back thereof. It will be readily seen that a racket for a left-handed player may be provided by reversing the above geometrical relations.

Next the underlying idea of the present invention will be described. Action for hitting the ball or the like by the racket is consisting of the simultaneous actions of aiming at and hitting the ball or the like. Therefore, the ball hitting action of a player may be considered to be consisting of a "ball aiming form or posture" and "ball hitting form or posture". Under the conditions of viewing angle, the range of clear vision, etc. a player aims at a ball in the most suitable form or posture following his primitive instincts. The same holds true for the form or posture for hitting or returning the ball or the like. It is easy to hit or return the ball from the opponent when the player assumes the form or posture which is best suited not only for aiming at the ball or the like but also for hitting the same. For the sake of explanation of the present invention, such form or posture as described above will be referred as "no form or posture difference". On the other hand, when the form or posture for aiming at the ball or the like is widely different from that for hitting the ball or the like, and this will be referred to as "wide form or posture difference."

Generally, the "wider the form or posture difference", harder to hit the ball or the like. For example, in case of the backhand drive, the player must turn his body. But when he turns his body in excess from a certain degree, he can hardly hit the ball or the like as it is very difficult to aim at the ball in such a form or posture. That is the "form or posture difference" is wider. To easily aim at the ball, it is imperative not to turn his body too much because when he does so the motion of his arm will not follow the direction for hitting the ball or the like. In other words, the axis of the racket and the direction of hitting the ball or the like (to be referred to as "racket phase" hereinafter for the sake of clarity of the description) will not be best coordinated with the motion of the arm. Consequently, if this racket phase can be suitably adjusted, the player may assume the best form or posture for returning the ball or the like. The present invention is based on such principle as described above.

The most important motion of the racket is the rotation, which may be composed of the following two motions. The first motion is that of the upper end of the frame 12 about the lower portion of the handle 20 along the arc of a circle, that is the motion in the clockwise and counterclockwise directions. The second motion is that of the racket about the longitudinal axis of the racket that is the threadlike motion. According to the present invention, the axis of the striking section 10 is inclined through an angle α relative to the axis of the handle 20 in order to compensate the first mentioned motion while the handle 20 is twisted through an angle of β in order to compensate said "threadlike" motion. According to the racket of the present invention, the construction thereof as described above will naturally help and compensate the motions or actions of various joints of the arm so that the striking or returning the ball or the like may become more easy.

Furthermore, when the angles α and β are so selected that there will be "no form or posture difference" when hitting or returning the ball or the like coming the courses intermediate the outermost and innermost courses at which a player can hit back the ball or the like in both of the forehand and backhand drives, the joints of the arm have still functional margins for

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their actions or motions in all playing ranges so that the playing range may be extended widely, the weak points in hitting back the ball or the like may be eliminated, and the overall playing action may be smoothly and correctly performed.

Next the reason why the longitudinal axis of the handle 20 coincides with the center G of gravity of the striking section 10 will be described. When arranged as described above, the weights of the both of the right and left halves of the hitting section 10 divided by its major axis may be made equal so that the racket can be prevented from being subjected to unstable motion when striking the ball or the like. The reason for twisting the grip relative to the handle 20 is that the grip P may be so constructed and arranged as to be best suited for natural gripping.

The invention may be embodied in other specific forms without departing from the spirit or essential characteristics thereof. The present embodiments are, therefore, to be considered in all respects as illustrative and not restrictive, the scope of the invention being indicated by the appended claims

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rather than by the foregoing description, and all changes which come within the meaning and range of equivalency of the claims are therefore to be embraced therein.

I claim:

1. A racket comprising a hitting section consisting of an oval frame and stringing stretched in the opening face of said frame, a handle extending therefrom and a grip formed at the lower portion of said handle, the cross section of said handle having a major axis, the major axis of said oval frame being inclined relative to the longitudinal axis of said handle within a plane including said stringing, and said major axis of said handle being at an angle relative to said plane of said frame.

2. A racket as defined in claim 1, wherein the extension of the longitudinal axis of the handle coincides with the center of gravity of the striking section.

3. A racket as defined in claim 1, wherein said grip is inclined relative to said longitudinal axis of said handle.

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